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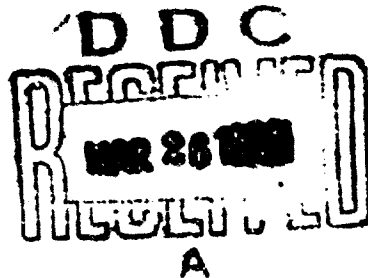
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TECHNICAL REPORT
68-30-ES

ARTHROPODS OF MEDICAL IMPORTANCE
IN LATIN AMERICA PART II

by
B. V. Travis
R. M. Labadan

Cornell University
Ithaca, New York

December 1967



UNITED STATES ARMY
NATICK LABORATORIES
Natick, Massachusetts 01760



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TECHNICAL REPORT
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ARTHROPODS OF MEDICAL IMPORTANCE
IN LATIN AMERICA

Part II, Arthropods other than Mosquitoes

by

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and

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Ithaca, New York)

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ARTHROPODS OF MEDICAL IMPORTANCE
IN LATIN AMERICA

PART II

Data on Arthropods other than Mosquitoes

[Part I, published separately, contains:
Introductory and Explanatory Material
and Data on Mosquitoes]

TABLE OF CONTENTS

Page

PART II DATA ON ARTEROPODS OTHER THAN MOSQUITOES

B. Black flies	217
1. Table 1. Black flies	218
2. Table 2. Summary of diseases or disease organisms transmitted by black flies	240
3. Literature cited	241
C. Sand flies	245
1. Table 1. Sand flies	246
2. Table 2. Summary of diseases or disease organisms transmitted by sand flies	263
3. Literature cited	264
D. Midges	269
1. Table 1. Midges	270
2. Table 2. Summary of diseases or disease organisms transmitted by midges	287
3. Literature cited	288
E. Horse flies	293
1. Table 1. Horse flies	294
2. Literature cited	296
F. Biting flies	371
1. Table 1. Biting flies	372
2. Literature cited	373
G. Non-biting flies	375
1. Table 1. Non-biting flies	376
2. Table 2. Summary of diseases or disease organisms transmitted by non-biting flies	379
3. Literature cited	381

TABLE OF CONTENTS (CONTINUED)

	<u>Page</u>
H. Fleas	385
1. Table 1. Fleas	386
2. Table 2. Summary of diseases or disease organisms transmitted by fleas	416
3. Literature cited	417
I. Bugs	423
1. Table 1. Bugs	424
2. Table 2. Summary of diseases or disease organisms transmitted by bugs	431
3. Literature cited	433
J. Urticating and vesicating arthropods	437
1. Table 1. Urticating and vesicating arthropods	438
2. Table 2. Summary of diseases or disease organisms transmitted by urticating and vesicating arthropods	440
3. Literature cited	442
K. Ticks	443
1. Table 1. Ticks	444
2. Table 2. Summary of diseases or disease organisms transmitted by ticks	466
3. Literature cited	468
L. Mites	475
1. Table 1. Mites	476
2. Table 2. Summary of diseases or disease organisms transmitted by mites	481
3. Literature cited	483
M. Miscellaneous Arthropods	485
1. Table 1. Miscellaneous arthropods	486
2. Table 2. Summary of diseases or disease organisms transmitted by miscellaneous arthropods	489
3. Literature cited	490

INDEX OF COUNTRIES

In 1962 a world-wide Geographic Index was published* listing countries, islands, and major regions in alphabetical order, and assigning a number to each. The following list consolidates the countries of Latin America and other territories included in this report. The countries and island groups, as named at the time of publication of the present report, are shown on the adjacent map.

All the numbers of Latin American countries are listed in order. For example, 27 stands for Argentina and 328 for Venezuela. To accommodate citations that are not by specific countries, inclusive titles are used, e.g., 69 stands for Central America. This is the principal purpose of the Index: to identify the countries or other locations represented by numbers under DISTRIBUTION (Table 1 or Table 2).

The Index also includes at least the major synonyms. The synonymy is preceded by a dash, while the numbers appear before the main entries. For example, near the end of this Index we have (in both alphabetical and numerical order): "297 Surinam or Netherlands Guiana," the main listing. Earlier we also have, in alphabetical order: "- Netherlands Guiana or Surinam 297."

*B. V. Travis, Herbert H. Casewell, Jr., William B. Rowan, Helle Starcke, and Carl W. Ross: Classification and coding system for compilations from the world literature on insects and other arthropods that affect the health and comfort of man, Technical Report ES-4, Quartermaster Research & Engineering Center, Natick, Massachusetts, 1962

INDEX OF COUNTRIES

16. Antarctic Circle, within the (Inclusive title)
 - Antarctic Peninsula, formerly Palmer Peninsula, included in Antarctic Circle 16
17. Antilles, Greater--Bahama Islands
18. Antilles, Greater--Cuba
19. Antilles, Greater--Dominican Republic
20. Antilles, Greater--Haiti
21. Antilles, Greater--Jamaica
22. Antilles, Greater--Puerto Rico
23. Antilles, Lesser--Virgin Islands
24. Antilles, Lesser (Inclusive title)
27. Argentina
 - Bahama Islands, indexed as Antilles, Greater--Bahama Islands 17
 - Barbados, indexed with Antilles, Lesser 24
48. Bermuda Islands
51. Bolivia
53. Brazil
 - British Guiana (formerly), now Guyana 129
 - British Honduras 138
 - Canal Zone or Panama Canal Zone 238
56. Central America--Coastal Islands in Caribbean
69. Central America (Inclusive title)
74. Chile
79. Clipperton Island
80. Cocos Island or Isla del Coco
 - Colón Archipelago or Galapagos Islands 115
82. Colombia
85. Costa Rica
 - Cuba, indexed as Antilles, Greater--Cuba 18

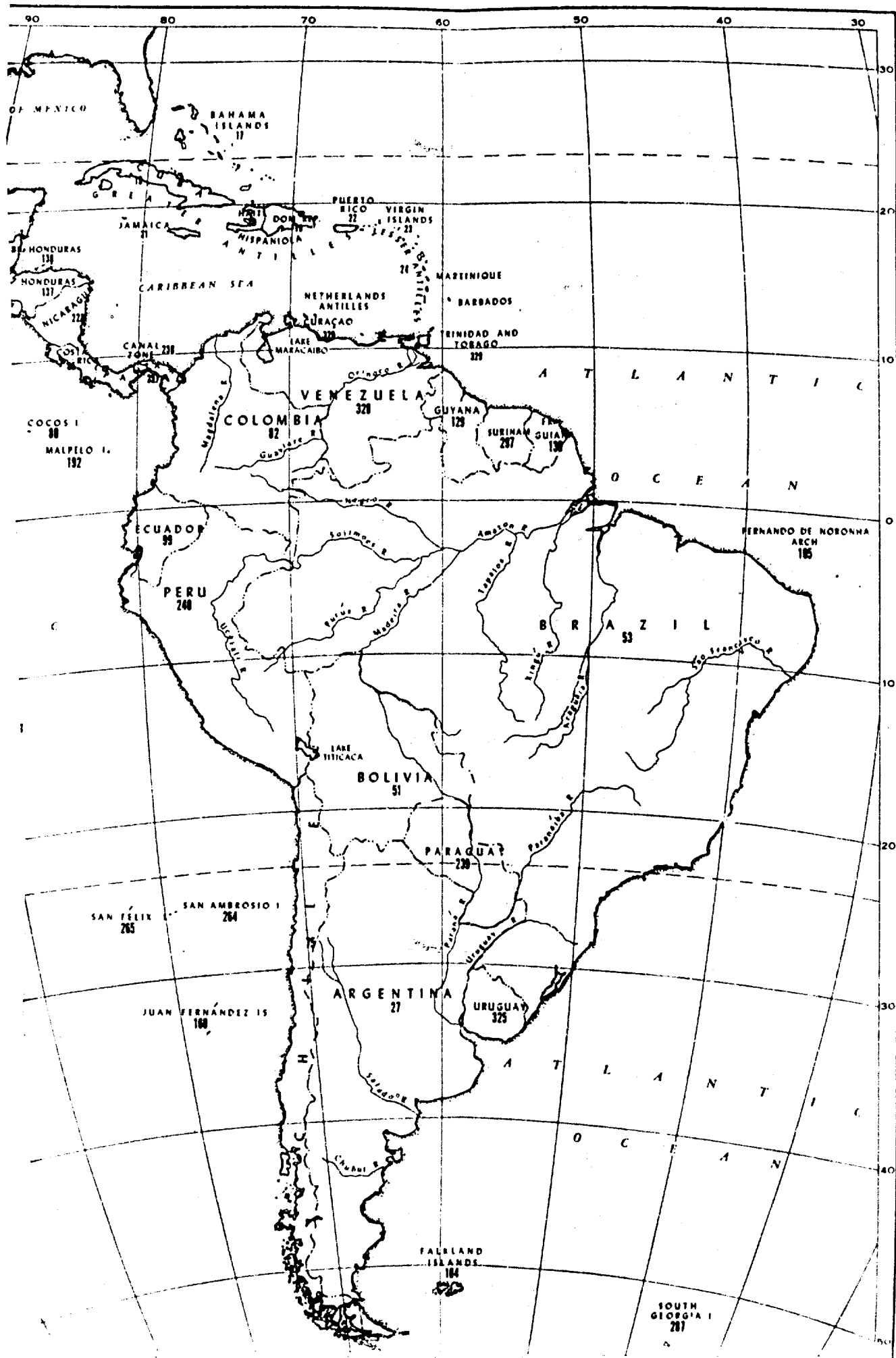
INDEX OF COUNTRIES (CONTINUED)

- Curaçao, indexed with Venezuelan Coastal Islands 329
- Dominican Republic, indexed as Antilles, Greater--Dominican Republic 19
- 91. Hispaniola or Quisqueya or Santo Domingo (Inclusive title)
- 99. Ecuador
 - El Salvador 262
- 104. Falkland Islands
- 105. Fernando de Noronha Archipelago
 - French Guiana 130
- 116. Galápagos Islands or Galápagos Archipelago or Colón Archipelago
- 127. Guadalupe Island
- 128. Guatemala
- 129. Guiana, British (formerly), now Guyana
- 130. Guiana, French
 - Guiana, Netherlands or Surinam 297
 - Guianas, The 347 (Inclusive title)
 - Guyana, formerly British Guiana 129
 - Haiti, indexed as Antilles, Greater--Haiti 20
 - Hispaniola or Quisqueya or Santo Domingo (Inclusive title) 91
- 137. Honduras
- 138. Honduras, British
 - Jamaica, indexed as Antilles, Greater--Jamaica 21
- 160. Juan Fernandez Islands
- 192. Malpelo Island
 - Martinique, indexed with Antilles, Lesser 24
- 204. Mexico
 - Netherlands Guiana or Surinam 297
- 223. Nicaragua
 - Palmer Peninsula (formerly), now Antarctic Peninsula, in Antarctic Circle 18

INDEX OF COUNTRIES (CONTINUED)

- 237. Panama
- 238. Panama Canal Zone or Canal Zone
- 239. Paraguay
- 240. Peru
- 241. Peter I Island
 - Puerto Rico, indexed as Antilles, Greater--Puerto Rico 22
 - Quisqueya or Santo Domingo or Hispaniola (Inclusive title) 91
- 252. Revillagigedo Islands
 - Saint Paul Rocks 335
- 261. Sala-y-Gomez Island
- 262. Salvador, El
- 264. San Ambrosio Island
- 265. San Félix Island
 - Santo Domingo or Hispaniola or Quisqueya (Inclusive title) 91
 - South America 352 (Inclusive title)
- 287. South Georgia Island
- 288. South Orkney Islands
- 290. South Sandwich Islands
- 291. South Shetland Islands
- 297. Surinam or Netherlands Guiana
 - Trinidad and Tobago, indexed with Venezuela Coastal Islands 329
- 325. Uruguay
- 328. Venezuela
- 329. Venezuela Coastal Islands, including: Trinidad and Tobago
 - Virgin Islands, indexed as Antilles, Lesser--Virgin Islands 23
- 335. Saint Paul Rocks
- 346. West Indies (Inclusive title)
- 347. Guianas, The (Inclusive title)
- 352. South America (Inclusive title)





B. BLACK FLIES

The black fly entries include little on biology and disease. Most of the recorded information is on distribution.

In the tables are listed 275 species or subspecies.

TABLE 1 - BLACK FLIES

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CNEPHIA</i>	---; ---; 128	Dalmat	1955
<i>aguirrei</i> (Dalmat)	Permanent stream; at an altitude of 880 meters; 204	Vargas & Diaz Najera	1952
<i>atcompensis</i> Diaz Najera	Cold, partially shaded water with emergent vegetation; ---; 53	Diaz Najera	1962
<i>grenieri</i> Vargas & Diaz Najera	Limpid water with vegetation, well shaded; ---; 204	Vargas & Diaz Najera	1948
<i>mixensis</i> Diaz Najera	---; ---; 204	Diaz Najera	1962
<i>ockracea</i> (Walker)	---; March; 204	Vargas et al.	1946
<i>pacheco-lunai</i> (De Leon)	Streams; ---; 128°	Dalmat	1955
	---; ---; 128	Dalmat	1951
	---; ---; 204	Diaz Najera	1962
<i>roblasi</i> (De Leon)	Stream; ---; 128	Dalmat	1955
<i>EUSIMULIUM</i>			
<i>alticolum</i> Dyar & Shannon	---; ---; 204	Dyar & Shannon	1927
<i>bicoloratum</i> Mall.	---; ---; 328	Iriarte	1943
<i>callidum</i> Dyar & Shannon	---; ---; 204	Dyar & Shannon	1927
<i>dinelli</i> (Joan)	Water with rapid current; March-May; 27	Paterson & Shannon	1927
<i>inaequalis</i> Paterson & Shannon	---; ---; 27°	Paterson & Shannon	1927
<i>lahillei</i> Paterson & Shannon	---; May, Aug.; 27	Paterson & Shannon	1927
<i>lutzianus</i> Pinto	---; ---; 328	Iriarte	1943
<i>lugubre</i> Lutz & Núñez Tovar	---; ---; 328	Iriarte	1943
<i>mexicanum</i> Bellardi	---; ---; 204	Dyar & Shannon	1927

TABLE 1 - BLACK FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>EUSIMULIUM</i> <i>mooseri</i> Dampf	---; ---; 204° ---; infected with <i>Onchocerca volvulus</i> ; 204	Hoffmann Vargas & Ruiz Reyes	1930 1949
<i>ochraceum</i> Walker	---; ---; 53° ---; ---; 128 ---; ---; 204	Hoffmann Ortiz Dyar & Shannon	1930 1944a 1927
<i>paraguayense</i> Schroetky	---; ---; 27°, 53°, 239°, 328° ---; ---; 328	Iriarte Ortiz	1946 1944a
<i>pertinax</i> Paterson & Shannon	---; ---; 27	Paterson & Shannon	1927
<i>turgidum</i> Hoffmann	---; ---; 204	Hoffmann	1930
<i>FRIESIA</i> <i>quadrivittata</i> (Loew)	---; ---; 18	Enderlein	1934
<i>GIGANTODAX</i> <i>aquamarensis</i> (De Leon)	Streams; at 1800 meters altitude; 128	Dalmat	1955
<i>bolivianus</i> Enderlein	---; at 3500 meters elevation; 51	Enderlein	1925
<i>wrighti</i> Vargas, Martinez, Diaz	---; ---; 128 ---; at 3200 meters altitude, March; 204 ---; Nov.; 204	Dalmat Dalmat Vargas et al.	1951 1955 1946
<i>HEMICNETHA</i> <i>mexicana</i> Enderlein	---; ---; 204	Enderlein	1934
<i>LUTZSIMULIUM</i> <i>cruxi</i> Andretta & Andretta	---; ---; 53	d'Andretta & d'Andretta	1947
<i>MELUSINA</i> <i>dinellii</i> Joan	On plants in fast currents of water; abundant and annoying March-May; 27°	Paterson & Shannon	1927
<i>ODAGMIA</i> <i>arctica</i> (Malloch)	---; ---; 82	Enderlein	1925
<i>aureopunctata</i> (Malloch)	---; ---; 128	Enderlein	1925

TABLE 1 - BLACK FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>ODAGMIA</i>			
<i>bicolorata</i> (Malloch)	---; ---; 240	Enderlein	1925
<i>bipunctata</i> (Malloch)	---; ---; 240	Enderlein	1925
<i>metallica</i> (Bellardi)	---; ---; 128	Enderlein	1925
<i>mexicana</i> (Bellardi)	---; ---; 204	Enderlein	1925
<i>nitida</i> (Malloch)	---; ---; 240	Enderlein	1925
<i>ochracea</i> (Walker)	---; ---; 204	Enderlein	1925
<i>townsendi</i> (Malloch)	---; ---; 240	Enderlein	1925
<i>virgata</i> (Coquillett)	---; ---; 204	Enderlein	1925
<i>PSORONIOCOMPSA</i>			
<i>opalinifrons</i> Enderlein	---; ---; 239*	Enderlein	1934
<i>SIMULIUM</i>			
<i>acatenangoensis</i> Dalmat	Shaded streams with muddy or sandy beds, stones and emergent vegetation; all year; 128	Dalmat	1951
<i>aequatoriense</i> Enderlein	---; ---; 99	Vargas	1945
<i>aequifurcatum</i> Lutz	---; ---; 53	Vargas	1945
<i>aguirrei</i> Dalmat	In streams of volcano slopes with sand and mud bottoms and abundant emergent vegetation; July, Oct.; 128	Dalmat	1949
<i>albidinotum</i> Enderlein	---; ---; 240	Vargas	1945
<i>albilineatum</i> Enderlein	---; ---; 240	Vargas	1945
<i>albopictum</i> Lane & Porto	---; ---; 53	Vargas	1945
<i>alticola</i> D - & Shannon	---; ---; 204	Vargas	1945

TABLE 1 - BLACK FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>SIMULIUM</i> <i>amazonicum</i> Goeldi	---; ---; 22, 129, 239, 240. ---; April; 328°	Briceno- Iragorrry et al.	1953
	Fast streams with waterfalls; bites man avidly along rivers; 53°	Lutz	1917
	Swift flowing water with algae; ---; 53	Strong et al.	1926
	---; infected with <i>Mansonella ozzardi</i> ; 53	Nelson & Pester	1962
	---; ---; 328	Smart	1940
<i>anduzei</i> Vargas	---; at 1980 meters altitude; 204	Vargas & Diaz Najera	1948
<i>angrense</i> Pinto	---; ---; 53	Vargas	1945
<i>angustifrons</i> Enderlein	---; ---; 51	Vargas	1945
<i>annulatum</i> Philippi	---; ---; 75	Vargas	1945
<i>antarcticum</i> Bigot	---; ---; 27	Orfila	1939
	---; ---; 75	Vargas	1945
<i>anthracinum</i> Bigot	---; ---; 27, 75	Orfila	1939
	---; ---; 75°	Edwards	1931
<i>artillarium</i> Jennings	---; woodlands; 21, 22, 24 (Blood sucker)	Smart	1940
	---; ---; 23	Vargas	1945
	---; vicious biter in open country, especially in morning; 24°	Floch & Abonnenc	1946 +
<i>antunesi</i> Lane & Porto	---; ---; 53	Vargas	1945
<i>araucanum</i> Edwards	---; ---; 27, 75	Vargas	1945
<i>ardeni</i> Dalmat	Streams; Nov.; 128	Dalmat	1955
<i>argentatum</i> Enderlein	---; ---; 240	Vargas	1945
<i>atroparvum</i> Edwards	---; ---; 27	Vargas	1945

TABLE 1 - BLACK FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>SIMULIUM</i> <i>curvum</i> (Fries)	Wide streams with sand and mud bottoms with stones and emergent plants, exposed to sun; Nov., Dec., and March; 128 ---; March, April; 204	Dalmat Vargas et al.	1949 1946
<i>curipellitum</i> Enderlein	---; ---; 236	Vargas	1945
<i>curistriatum</i> (Lutz)	---; ---; 53	Strong et al.	1926
<i>avidum</i> Hoffmann	---; ---; 53* Swiftly flowing mountain brooks and streams, attached to plants; experimentally infected with and suspected transmitter of Onchocerciasis; 128	Hoffmann Strong et al.	1930 1934
<i>ayrosai</i> Vargas	---; Feb.; 204	Vargas et al.	1946
<i>baianae</i> Pinto	---; ---; 53	Vargas	1945
<i>barbatipes</i> Enderlein	---; ---; 51, 240	Vargas	1945
<i>benjamini</i> Dalmat	Stream; at an altitude of 1500-5000 feet; 128	Dalmat	1955
<i>bioloratum</i> Malloch	---; ---; 240, 328	Vargas	1945
<i>bolivianum</i> Enderlein	---; ---; 51	Vargas	1945
<i>botulibranchium</i> Lutz	---; ---; 53	Vargas	1945
<i>brachyolachum</i> Lutz & Pinto	---; ---; 53	Vargas	1945
<i>brasilianae</i> Enderlein	---; ---; 53	Vargas	1945
<i>brevibranchium</i> Lutz & Machado	---; ---; 53	Vargas	1945
<i>brevifurcatum</i> Lutz	---; ---; 53	Vargas	1945
<i>brilonot</i> Vargas, Martinez, & Diaz	---; Feb -March; 204	Vargas et al.	1946

TABLE 1 - BLACK FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>SIMULIUM</i> <i>brophyi</i> Edwards	---; ---; 27	Vargas	1945
<i>burchi</i> Dalmat	On stones and vegetation in shallow, swift streams, sunny or shaded; ---; 128	Dalmat	1951
	---; Nov.; 128	Dalmat	1955
<i>bustosi</i> Vargas, Martínez & Diaz	---; March; 204	Vargas et al.	1946
<i>callidum</i> (Dyar & Shannon)	Wide streams with sand and mud bottoms with stones and emergent plants, exposed to sun; ---; 128	Dalmat	1949
	---; bite by day, naturally infected with <i>Onchocerca caecutiens</i> , all year, abundant Sept.-June; 128°	Strong et al.	1934
	---; naturally infected with and suspected vector of <i>Onchocerca volvulus</i> ; 128	Dalmat	1955
	---; experimentally infected with <i>O. volvulus</i> ; 128	Gibson & Dalmat	1952
	---; bites man indoors and outdoors, shaded places; 128°	Dalmat	1950
	---; ---; 128*, 130*, 297*, 328*	Geigy & Herbig	1955
	---; ---; 128*, 204*	Dampf	1936
	Rapid torrents of large volume; most abundant in 3-4 months following rainy season; 204	Mazzotti	1948 +
	Irrigation ditches; infected with <i>O. volvulus</i> ; 204	Hoffmann	1930a +
	Streams with leaves and sand; ---; 204	Vargas	1945 c
	---; Jan.; 204°	Vargas	1945 a
<i>canadense</i> Hearle	---; March; 204	Vargas et al.	1946
<i>capricornis</i> De Leon	Wide streams with sand and mud bottoms with stones and emergent plants, exposed to sun; Nov., Dec. and March; 128	Dalmat	1949
	Shaded streams with muddy beds with stones and vegetation; ---; 128	Dalmat	1951

TABLE 1 - BLACK FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>SIMULIA</i> <i>carolinensis</i> De Leon	Waterfall; at an altitude of 1900 meters; 128 ---; March, May; 204	Dalmat Vargas et al.	1955 1946
<i>catantensis</i> Pinto	---; ---; 53	Vargas	1945
<i>cauchensis</i> Floch & Abonnenc	Small, slow streams; Feb.; 130	Floch & Abonnenc	1946 +
<i>chalcocoma</i> Knob	---; ---; 240	Vargas	1945
<i>chilensis</i> Philippi	---; ---; 27, 75	Orfila	1939
<i>chilensis</i> Zandani	---; ---; 75	Vargas	1945
<i>clarki</i> Fairchild	Running water, attached to rocks and vegetation; ---; 237"	Fairchild	1943
	Grass blades and water weeds in a small stream; ---; 237, 238	Fairchild	1940
	---; ---; 328	Vargas	1945
<i>clavibronchialis</i> Lutz	---; ---; 53	Vargas	1945
<i>coffea</i> Vargas	---; ---; 204	Vargas	1945
<i>colvini</i> Dalmat	Stream; July; 128	Dalmat	1955
<i>costa-limae</i> Vargas, Martinez & Diaz	---; Feb.; 204	Vargas et al.	1946
<i>costaricensis</i> Vargas	---; ---; 85	Vargas	1945
<i>costatus</i> Friedericks	---; ---; 27	Vargas	1945
<i>crucians</i> Guderlein	---; ---; 239	Vargas	1945
<i>dalmati</i> Vargas	---; ---; 204	Vargas & Diaz Najera	1948

TABLE 1 - BLACK FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>SIMULIUM</i>	---		
<i>d'andrettai</i>	---; at 3005 meters elevation; 204	Vargas & Diaz Najera	1948
Vargas, Martinez & Diaz	---; March, Oct., Dec.; 204	Vargas et al.	1946
<i>delatorrei</i>	---; Feb.; 128	Dalmat	1953
Dalmat			
<i>delseoni</i>	---; Dec.; 204	Vargas et al.	1946
Vargas			
<i>delportai</i>	---; Mar., May; 27°	Paterson & Shannon	1927
Paterson & Shannon			
	---; ---; 27, 51	Vargas	1945
<i>diaz-najera</i>	---; ---; 204	Vargas	1945
Vargas			
<i>dinelli</i>	---; ---; 27, 51, 240	Vargas	1945
(Joan)			
	---; ---; 128*	Robles	1919
<i>dissimile</i>	Small streams; ---; 27, 75	Edwards	1931
Edwards			
<i>distinctum</i>	---; ---; 27, 53	Orfila	1939
Lutz			
<i>diversibranohium</i>	---; ---; 53	Vargas	1945
Lutz			
<i>diversifurcatum</i>	---; ---; 53	Vargas	1945
Lutz			
<i>donovani</i>	---; ---; 204	Vargas	1943
Vargas			
<i>downsi</i>	Wide streams with sand and mud bottoms with stones and emergent plants exposed to sun; Nov., Dec. and March; 128	Dalmat	1949
Vargas, Martinez & Diaz			
	Shaded streams with muddy or sandy beds with stones and vegetation; ---; 128	Dalmat	1951
	---; ---; 128°	Dalmat	1955
	---; Jan.-May, Aug.-Oct., Dec.; 204	Vargas et al.	1946
<i>dugei</i>	Sunny stream; at an altitude of 1,050 feet; 128	Dalmat	1955
Vargas, Martinez & Diaz			
	---; March; 204	Vargas et al.	1946

TABLE 1 - BLACK FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>SIMULIUM</i> <i>earlei</i>	---; July; 128	Dalmat	1955
Vargas, Martinez Diaz	---; July; 204	Vargas et al.	1946
<i>edwardsi</i> Enderlein	---; ---; 27, 75	Vargas	1945
<i>escobalti</i> Roubaud	---; ---; 75, 240	Vargas	1945
<i>esteseni</i> Vargas	---; at 1600 meters elevation; 204	Vargas & Diaz Majera	1948
<i>ethelas</i> Dalmat	---; Nov.; 128	Dalmat	1955
<i>exiguum</i> Roubaud	---; ---; 82, 128, 237, 240, 323	Vargas	1945
	Streams; experimentally and naturally infected with and suspected transmitter of <i>Onchocerca</i> <i>volvulus</i> ; 128°	Dalmat	1955
	---; March, Dec.; 204	Vargas et al.	1946
<i>faloulatum</i> Vargas	---; ---; 204	Vargas et al.	1946
<i>fairchildi</i> Vargas	---; ---; 237	Vargas	1942
<i>farinsum</i> Edwards	Stones in small streams; ---; 27	Edwards	1931
<i>flavipictum</i> Knab	---; ---; 240	Vargas	1945
<i>flavopubescent</i> Lutz	---; ---; 53	Vargas	1945
<i>fulvescens</i> Blanchard	---; ---; 27, 75	Vargas	1945
<i>gumaleones</i> Vargas, Martinez & Diaz	---; April; 204°	Vargas et al.	1946
<i>gaudentum</i> Knab	---; ---; 240	Vargas	1945
<i>glaucoptalmicum</i> Knab	---; ---; 240	Vargas	1945
<i>griseonense</i> Wise	Aquatic plants in swiftly flowing streams, only submerged during wet season; near rivers; 129	Smart	1940
	Fast current; bite man on cloudy days; 130°	Floch & Abouneenc	1946 +

TABLE 1 - BLACK FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>SIMULIUM</i> <i>guttatum</i> Enderlein	---; ---; 239	Vargas	1945
<i>gynandrum</i> Edwards	---; ---; 27	Vargas	1945
<i>hoarupianum</i> Enderlein	---; ---; 27	Vargas	1945
<i>haematopodum</i> Malloch	---; ---; 18, 22, 137, 204°. Streams; ---; 238	Iriarte	1946
	---; experimentally and naturally infected with and suspected vector of <i>Onchocerca volvulus</i> ; 128	Dalmat	1955
	---; ---; 128*, 130*, 297*, 328*	Geigy & Herbig	1955
	Forest creek; ---; 129°	Smart	1940
	---; ---; 129	Vargas	1945
	---; April; 204	Vargas et al.	1946
	---; ---; 237. Grass and dead leaves in small stream; readily bite man at lower elevations; 238°	Fairchild	1940
<i>hechti</i> Vargas, Martinez & Diaz	---; March-April; 204	Vargas et al.	1946
<i>heringi</i> Enderlein	Streams; ---; 119	Enderlein	1925
<i>hirmani</i> Vargas, Martinez & Diaz	---; April, Oct.; 204	Vargas et al.	1946
<i>hirticosta</i> Lutz	---; ---; 53	Vargas	1945
<i>hirtipapa</i> Lutz	---; ---; 53	Vargas	1945
<i>hoffmanni</i> Vargas	---; ---; 51, 340	Vargas	1945
<i>igniscae</i> Roubaud	---; ---; 99	Vargas	1945
<i>inasquale</i> Paterson & Shannon	---; March; 27	Vargas	1945

TABLE 1 - BLACK FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>SINULIUM</i> <i>inacium</i> Vargas	---; at 3000-4000 meters altitude, June, Aug.; 240	Vargas	1945
<i>inertum</i> Lutz	---; ---; 53	Vargas	1945
<i>inorustatum</i> Lutz	---; ---; 53, 328	Vargas	1945
	---; ---; 328°	Martorelli	1939
<i>inexorable</i> (Schrottky)	---; ---; 53	Strong et al.	1926
<i>infusatum</i> Lutz	---; ---; 53	Vargas	1945
<i>iracouboense</i> Floch & Abonnenc	Rivers with very fast current; ---; 130	Floch & Abonnenc	1946 +
<i>iriartei</i> Vargas, Martinez & Dias	---; Feb., April, Aug.; 204	Vargas et al.	1946
<i>jacobei</i> Dalmat	Stream; June; 128	Dalmat	1955
<i>jacombae</i> Dyar & Shannon	Streams; ---; 128 ---; ---; 204	Dalmat Vargas & Dias Majera	1955 1948
<i>jobbinsi</i> Vargas, Martinez & Dias	Wide streams with sand and mud bottoms with stones and emergent plants exposed to sun; Nov., Dec. and March; 128 ---; at an altitude of 1400 meters, Dec.; 204	Dalmat Dalmat	1949 1955
<i>jufuyense</i> Paterson & Shannon	---; March-April; 27° ---; ---; 27, 51	Paterson & Shannon Orfila	1927 1939
<i>kanloopei</i> Hearle	---; May, Nov.; 204	Vargas et al.	1946
<i>kampi</i> Dalmat	On stones and very little vegetation in shaded spots along shallow stream; ---; 128 ---; June; 128	Dalmat Dalmat	1951 1955
<i>lehillei</i> Paterson & Shannon	---; ---; 27	Orfila	1939

TABLE 1 - BLACK FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>SINULIUM</i>			
<i>lane-portoi</i> Vargas	---; ---; 53	Vargas	1945
<i>larvispinosum</i> De Leon	Small waterfall; ---; 128	Dalmat	1955
<i>lasemannii</i> Vargas, Martinez & Diaz	---; March-May, Aug., Oct.; 204	Vargas et al.	1946
<i>latioale</i> Enderlein	---; ---; 240	Vargas	1945
<i>latidigitum</i> Enderlein	---; ---; 82	Vargas	1945
<i>latitarum</i> Enderlein	---; ---; 51, 240	Vargas	1945
<i>limbatum</i> Knab	---; ---; 129	Smart	1940
	---; ---; 328	Vargas	1945
<i>lugubre</i> Lutz & Funes Iover	---; ---; 128, 204, 237	Iriarte	1946
	---; ---; 328	Vargas	1945
<i>lutsianum</i> Pinto	---; ---; 82	Briceno- Iragorri	1947
	Small stream in low bush, attached to aquatic plants; ---; 129	Smart	1940
	---; ---; 328*	Iriarte	1946
	---; ---; 328	Vargas	1945
<i>macdoni</i> Enderlein	---; ---; 240, 328	Vargas	1945
<i>major</i> Lane & Porter	---; ---; 53	Vargas	1945
<i>mangabeirai</i> Vargas	---; experimentally infected with <i>Onchocerca</i> <i>volvulus</i> ; 204	Dalmat	1955
	---; Jan.; 204*	Vargas	1945 b
<i>maricatum</i> Enderlein	---; ---; 239, 240	Vargas	1945
<i>marathrumi</i> Fairchild	---; ---; 204	Nettel	1945 +
	---; ---; 237*	Fairchild	1940
	---; ---; 237	Vargas	1945

TABLE 1 - BLACK FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>SIMULIUM</i> <i>marginale</i> Edwards	---; ---; 27, 75	Vargas	1945
<i>maroniense</i> Floch & Abonnenc	---; ---; 130	Floch & Abonnenc	1946 +
<i>martinesi</i> Vargas	---; ---; 51, 82, 99, 240	Vargas	1945
<i>mathesonii</i> Vargas	---; ---; 128. ---; at 1400-1500 meters altitude, Nov.; 204	Dalmat	1955
	---; April; 204	Vargas et al.	1946
	---; ---; 328	Luis Gonzalez et al.	1950
<i>mendonacum</i> Enderlein	---; ---; 27	Vargas	1945
<i>metallicum</i> Bellardi	In streams of volcano slopes with sand and mud bottoms and abundant emergent vegetation; July, October; 128	Dalmat	1949
	Attached to blades of grass in rapid flowing water of a ditch; at altitudes of 1000 meters to 1400 meters; 128	Strong et al.	1934
	Streams, canals; naturally infected with and experimental vector of <i>Onchocerca volvulus</i> ; 128*	Dalmat	1955
	Shaded streams with muddy, sandy or stony beds with vegetation; ---; 128	Dalmat	1951
	---; bites man outdoors and indoors, shaded places, Feb.; 128*	Dalmat	1950
	---; possible vector of <i>Onchocerca oaxacensis</i> ; 128	Ortiz	1944a
	---; ---; 128*, 130*, 204, 297*, 328*	Geigy & Herbig	1955
	---; anthropophilic; 138*	Hocking & Hocking	1962
	Rapid torrents with large volume; most abundant in 3-4 months following rainy season; 204	Marzetti	1948 +
	Streams with leaves and sand; ---; 204	Vargas	1945 c
	Irrigation ditches; ---; 204	Hoffmann	1930 a +
	---, attracted to light, Jan.; 204*	Vargas	1945 a

TABLE 1 - BLACK FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>SIMULIUM</i> <i>metallorum</i> Ballardi (cont.)	Water weeds in mountain stream; ---; 237 ---; ---; 328° ---; ---; 328, 329	Fairchild Ballou Vargas	1940 1945 1945
<i>meridionale</i> Ballardi	---; ---; 82 Large and fast flowing streams with sandy, rocky bottom, on rocks and stones, exposed to sun; April, July, Aug., Oct.; 128 Shaded streams with muddy beds with stones and vegetation; ---; 128 ---; Sept.; 204	Briceno- Irrigorry Dalmat Vargas et al.	1947 1949 1951 1946
	Running water with rocks and vegetation; ---; 237°	Fairchild	1943
	Roots and dead leaves in a mountain stream; ---; 237 ---; ---; 328	Fairchild Luis Gonzalez et al.	1940 1950
<i>microbrachium</i> Dalmat	Wide streams with sand and mud bottoms with stones and emergent plants, exposed to sun; Nov., Dec., and March; 128 Shallow, fairly swift, shaded streams with hard clay bed, many stones and vegetation; ---; 128	Dalmat Dalmat	1949 1951
<i>minutulum</i> Enderlein	---; ---; 51, 240	Vargas	1945
<i>minutulum</i> Lutz	Springs; ---; 22 ---; ---; 53, 85, 239	Wolcott Vargas	1936 1945
<i>melli</i> Vargas	---; ---; 82, 240	Vargas	1945
<i>montanum</i> Philippi	---; ---; 27, 75	Edwards	1931
<i>moorei</i> Silva Figueroa	---; ---; 75°	Figueroa	1917

TABLE 1 - BLACK FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>SIMULIUM</i> <i>mooseri</i> Dampf	Swiftly flowing mountain brooks and streams, attached to plants; ---; 128	Strong et al.	1934
<i>neireti</i> Roubaud	---; ---; 53	Vargas	1945
<i>namorcle</i> Edwards	---; ---; 27° ---; ---; 27	Edwards Orfila	1931 1939
<i>nigrescens</i> Edwards	---; ---; 27	Vargas	1945
<i>nigricornis</i> Dalmat	Shallow, shaded stream with stony bed with very little emergent vegetation; ---; 128	Dalmat	1951
<i>nigrifemur</i> Enderlein	---; ---; 75	Vargas	1945
<i>nigrimacrum</i> Macquart	---; ---; 53	Vargas	1945
<i>nigristrigatum</i> Enderlein	---; ---; 27°, 75° ---; ---; 27, 75	Edwards Orfila	1931 1939
<i>occidentale</i> Townsend	---; ---; 204	Vargas et al.	1946
<i>ochoai</i> Vargas, Martinez & Diaz	---; April; 204	Vargas et al.	1946
<i>ochraceum</i> Walker	---; ---; 21, 204, 328 Wide streams with sand and mud bottoms with stones and emergent plants, exposed to sun; Nov., Dec. and March; 128 Shallow, fairly swift shaded streams with hard clay bed, many stones and vegetation; ---; 128 ---; all year, peaks in Jan. and Aug., experi- mental vector and natural ¹ infected with <i>Onchocerca volvulus</i> ; 128 ---; bites man indoors and outdoors, shaded places, Feb.; 128° ---; ---; 128°, 130°, 297°, 328° Small streams of moderate velocity; most abundant in 3-4 months following rainy season; 204°	Smart Dalmat Dalmat Dalmat Geigy & Herbig Mazzotti	1940 1949 1951 1955 1950 1958 1948 +

TABLE 1 - BLACK FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>SIMULIUM</i> <i>ochraceum</i> Walker (cont.)	Irrigation ditches; attacks man, infected with <i>Onchocerca volvulus</i> ; 204° ---; Jan.; 204°	Hoffmann Vargas	1930a + 1945 a
	Running water with rocks and vegetation; ---; 237°	Fairchild	1943
	Dead leaves in small streams; ---; 237, 238	Fairchild	1940
<i>opaliniifrons</i> Enderlein	---; ---; 239	Vargas	1945
<i>orbitale</i> Lutz	Attached to plants growing in large falls; ---; 53. ---; ---; 239	Lutz et al.	1918
<i>oyapokense</i> Floch & Abonnenc	Rivers with very fast current; ---; 130	Floch & Abonnenc	1946 +
<i>paranense</i> Fairchild	Running water with rocks and vegetation; ---; 237° ---; ---; 237	Fairchild Vargas	1943 1945
<i>paraguayense</i> Schrottky	---; ---; 27, 239, 328 ---; ---; 53°	Vargas Lutz et al.	1945 1918
	---; ---; 53	Smart	1940
	---; ---; 204	Vargas et al.	1946
<i>paranense</i> Schrottky	---; ---; 239	Vargas	1945
<i>parrai</i> Vargas, Martinez & Dias	In streams of volcano slopes with sand and mud bottoms and abundant emergent vegetation; July, Oct.; 128 ---; May; 204	Dalmat Vargas et al.	1949 1946
<i>paynei</i> Vargas	---; ---; 204	Vargas	1945
<i>pennipunctum</i> Enderlein	---; ---; 240	Vargas	1945
<i>perflavum</i> Roubaud	---; ---; 53	Vargas	1945
<i>perrigni</i> Lutz	---; ---; 53	Vargas	1945

TABLE 1 - BLACK FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>SIMULIUM</i> <i>pertinax</i> Kollar	---; ---; 27, 239 On rocks of torrential streams; ---; 53° ---; common along mountainous coast; 53	Vargas Lutz Lutz et al.	1945 1922 + 1918
---; ---; 328		Briceno- Iragorri	1946
<i>philippianum</i> Pinto	---; ---; 75	Vargas	1945
<i>pilosum</i> Lane & Porto	---; ---; 53°	Lane & Porto	1940
<i>pintoi</i> d'Andretta	---; ---; 53	d'Andretta & d'Andretta	1945
<i>placidum</i> Knab	---; ---; 329	Smart	1940
<i>prodez-argenteum</i> Enderlein	---; ---; 240	Vargas	1945
<i>pruinosum</i> Lutz	Waterfalls; enter houses; 53° ---; ---; 53	Lutz Vargas	1922 + 1945
<i>psuchhaematopodum</i> Hoffmann	---; ---; 204	Hoffmann	1930
<i>puigi</i> Vargas, Martinez & Diaz	---; Feb., Nov.; 204	Vargas et al.	1946
<i>pulchrum</i> Philippi	---; ---; 75	Vargas	1945
<i>pulverulentum</i> Knab	Large, fast-flowing streams with sandy, rocky bottom, on rocks and stones, exposed to sun; April, July-Aug., Oct.; 128 ---; ---; 128° ---; ---; 138, 328 ---; Dec.; 204 Wooden floor of water chute; ---; 223 On leaves of <i>Mimulus schiedeanus</i> ; ---; 237 ---; ---; 237° ---; ---; 262	Dalmat Dalmat Vargas Vargas et al. Woke Fairchild Fairchild Dalmat	1949 1955 1945 1946 1940 1947 1940 1943 1951

TABLE 1 - BLACK FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>SIMULIUM</i>			
<i>pneotativentris</i> Enderlein	---; ---; 75	Vargas	1945
<i>quadrifidum</i> Lutz	---; ---; 53	Vargas	1945
<i>quadririgatum</i> Enderlein	---; ---; 53, 239	Vargas	1945
<i>quadrivittatum</i> Loew	---; ---; 18, 21, 22, 85, 237, 238	Smart	1940
	---; Jul.-Sept., bite man, even in hot sun; 22°	Root	1922
	---; anthropophilic; 138	Hocking & Hocking	1962
	---; ---; 204, 328	Vargas	1945
	---; bites man in jungle; 223°	Woke	1947
	Grass and dead leaves in small stream; ---; 237°	Fairchild	1943
	---; ---; 328°	Ortiz	1944 a
<i>riveti</i> Roubaud	---; ---; 99	Vargas	1945
<i>roblesii</i> De Leon	---; at 3000 meters altitude; 128	Vargas	1945
<i>rorotaense</i> Floch & Abonnenc	In current of small streams; June; 130°	Floch & Abonnenc	1946
<i>rubicundulum</i> Knab	Wide streams with sand and mud bottoms with stones and emergent plants, exposed to sun; Dec. and March; 128	Dalmat	1949
	Shaded stream with muddy or sandy bed with stones and vegetation; ---; 128	Dalmat	1951
	---; June, Nov.; 204	Vargas et al.	1946
<i>rubiginosum</i> Enderlein	---; ---; 51	Vargas	1945
<i>rubiparvum</i> Lutz	---; ---; 27, 328	Orfila	1939
	Sand stone bed of swiftly flowing stream; attracted to light; 53, 129, 329	Smart	1940
	---; ---; 328°	Iriarte	1946
<i>rubescens</i> Edwards	---; ---; 27, 73	Vargas	1945

TABLE 1 - BLACK FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>SIMULIUM</i>			
<i>rufidorsum</i> Enderleitz	---; ---; 240	Vargas	1943
<i>rufinotum</i> Edwards	---; ---; 27, 75	Vargas	1945
<i>ruizi</i> Vargas	---; ---; 204	Vargas & Diaz Najera	1948
<i>samboni</i> Jennings	---; ---; 128*	Robles	1919
	---; ---; 204	Vargas	1945
	Running water with rocks, weeds and vegetation; ---; 237*	Fairchild	1943
	Dead leaves and twigs in small streams; ---; 237, 238	Fairchild	1940
<i>sanguineum</i> Knab	---; river banks, bites cause considerable irritation; 82°, 328°	Dunn	1929
	---; ---; 82, 129, 328	Vargas	1945
	---; ---; 129°, 237	Smart	1940
	---; ---; 238	Fairchild	1943
<i>sayi</i> Dyar & Shannon	---; ---; 204	Vargas	1945
<i>schoenemannii</i> Enderlein	---; ---; 75	Vargas	1945
<i>scutellatum</i> Lane & Porto	---; ---; 53°	Lane & Porto	1940
	---; ---; 82	Vargas	1945
<i>scutistriatum</i> Lutz	---; ---; 53	Vargas	1945
<i>seriatum</i> Knab	---; ---; 240	Vargas	1945
<i>shannoni</i> Edwards	---; ---; 27	Vargas	1945
<i>simile</i> Silva Figueroa	---; ---; 27, 75	Vargas	1945
<i>simplicicolor</i> Lutz	Waterfalls; ---; 53	Lutz	1922 +
<i>smartii</i> Vargas	Large, fast-flowing streams with sandy and rock bottoms with sparse emergent vegetation, exposed to sun; April, July, Aug., Oct.; 128	Dalmat	1949
	Streams; at 1,000 meters altitude, Jan.; 204	Dalmat	1955

TABLE 1 - BLACK FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>SINULIUM</i> <i>spadioides</i> Enderlein	---; ---; 53	Vargas	1945
<i>spinibranchium</i> Lutz	---; ---; 53	Vargas	1945
<i>spinifer</i> Knab	---; ---; 240	Vargas	1945
<i>strigatum</i> Enderlein	---; ---; 240	Vargas	1945
<i>strigidorsum</i> Enderlein	---; ---; 240	Vargas	1945
<i>striginotum</i> Enderlein	---; ---; 51	Vargas	1945
<i>sublavibranchium</i> Lutz	---; ---; 53	Vargas	1945
<i>subnigrum</i> Lutz	---; ---; 53, 82, 328, 329	Vargas	1945
	---; ---; 311	Smart	1940
<i>subpallidum</i> Lutz	---; ---; 53, 239	Vargas	1945
<i>subviride</i> Lutz	---; ---; 53	Vargas	1945
<i>tarsale</i> Williston	---; Nov.-Dec.; 24°	Floch & Abonnenc	1946 +
	---; ---; 24	Smart	1940
<i>tarsatum</i> Macquar.	---; ---; 82	Vargas	1945
<i>tenuipes</i> Knab	---; ---; 75	Vargas	1945
<i>townsendi</i> Malloch	---; ---; 240	Vargas	1945
<i>tricornis</i> De Leon	Wide streams with sand and mud bottoms with stones and emergent plants, exposed to sun; Nov., Dec. and March; 128	Dalmat	1949
	---; April; 204	Vargas	1946
<i>trivittatum</i> Malloch	Stream; ---; 128	Dalmat	1955
	---; Jan.; 204°	Vargas	1945 b
	---; ---; 204	Vargas et al.	1946

TABLE 1 - BLACK FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>SINULIUM</i>			
<i>urubambanum</i> Enderlein	---; ---; 240	Vargas	1945
<i>vandalium</i> Dyar & Shannon	---; Feb.; 204	Vargas et al.	1946
<i>variane</i> Lutz	---; ---; 53	Vargas	1945
<i>varipes</i> Philippi	---; ---; 70	Vargas	1945
<i>veracruzense</i> Vargas, Martinez & Dias	Wide streams with sand and mud bottoms with stones and emergent plants, exposed to sun; Nov., Dec. and March; 128	Dalmat	1949
	Fairly rapid, shaded streams with hard clay bed with many stones and some emergent vegetation; ---; 128	Dalmat	1951
	---; experimental vector and suspected trans- mitter of <i>Onchocerca volvulus</i> ; 128*	Dalmat	1955
	---; Feb., April, Aug.-Sept., Nov.; 204	Vargas et al.	1946
<i>versicolor</i> Lutz & Munoz Tovar	---; ---; 328	Smart	1940
<i>violaceosens</i> Enderlein	---; ---; 82, 204, 328	Vargas	1945
<i>virgatum</i> Coquillett	Swiftly flowing mountain brooks and streams with vegetation; ---; 128	Strong et al.	1934
	Small streams, with vegetation; June; 204	Vargas	1945c
	---; ---; 237	Vargas	1945
<i>virgatum</i> <i>chiapense</i> Coquillett	---; ---; 53	Hoffmann	1930
<i>virgatum</i> <i>rubimaculatum</i> Knab	Floating grass stalks in streams; ---; 128	Strong et al.	1934
<i>vittatum</i> Zetterstedt	---; Jan.; 204*	Vargas	1945b
<i>wolffhugeli</i> Enderlein	---; ---; 27	Vargas	1945

TABLE 1 - BLACK FLIES (conclusion)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>SIMULIUM</i> <i>wrighti</i> Vargas, Martinen & Diaz	Wide streams with sand and mud bottoms with stones and emergent plants, exposed to sun; Nov., Dec. and March; 128 ---; at 3,005 meters altitude; 204	Dalmat Vargas	1949 1945
<i>yepocapense</i> Dalmat	Large, fast-flowing streams with sandy, rocky bottom on rocks and stones, exposed to sun; April, July-August, Oct.; 128	Dalmat	1949
<i>semopalense</i> Vargas	Small creek; March; 204	Vargas et al.	1946
<i>THYRSOPELMA</i> <i>brasiliensis</i> Enderlein	---; ---; 53	Enderlein	1934
<i>TRICHODAGMIA</i> <i>ecuadoriensis</i> Enderlein	---; ---; 99	Enderlein	1934
<i>lutziana</i> Enderlein	---; ---; 53, 239	Enderlein	1934
<i>miniata</i> Enderlein	---; ---; 51, 82, 99, 240	Enderlein	1934
<i>spadioidorsum</i> Enderlein	---; ---; 53	Enderlein	1934
<i>WILHELMIA</i> <i>mallochi</i> Enderlein	---; ---; 18, 85	Enderlein	1925

TABLE 2 - SUMMARY OF DISEASES OR DISEASE ORGANISMS TRANSMITTED BY
BLACKFLIES

SPECIES	DISEASE ORGANISM					DISTRIBUTION
	VIRUS &	PROTOZOA	HELMINTHS	OTHER		
	RICKETTSIA					
<i>SIMULIUM</i>			Onchocerciasis		128, 204 (Dampf 1936)	
<i>callidum</i>						
Dyar & Shannon			<i>Onchocerca</i> <i>volvulus</i>		128, 130, 297, 328	
<i>divelli</i> (Loan)				"Coast erysipelas"	128	
<i>haematopotum</i> Malloch			<i>Onchocerca</i> <i>volvulus</i>		128, 130, 297, 328	
<i>metallicum</i> Bellardi			<i>Onchocerca</i> <i>volvulus</i>		128, 130, 297, 328	
<i>cohracum</i> Walker			<i>Onchocerca</i> <i>volvulus</i>		128, 130, 297, 328	
<i>samboni</i> Jennings				"Coast erysipelas"	128	

LITERATURE CITED

Ballou, C.H.

1945. Notas sobre insectos dañinos observados en Venezuela 1932-1943. Cuad. verde Com. organ. 3a. Conf. interamer. Agric. No. 34. 151 p.

Briceno-Iragorri, L.

1946. Breve nota acerca de un nuevo simuliido para el país. Bol. Lab. Clin. Ezettí. 15(21-22):494-495.

1947. Breve Nota acerca de Simuliidos Colombianos. Bol. Lab. Clin. Ezettí. 15(23-24):516-517.

—, L. Vargas & A. Díaz Najera

1953. Algunos caracteres morfológicos de *Simulium amazonicum* Coeldi, 1905. Rev. Inst. Salubr. Enferm. trop., Méx. 13(3):243-245.

Salvat, H.T.

1949. New species of Simuliidae (Diptera) from Guatemala. I. Ann. ent. Soc. Amer. 42(4):538-553.

1950. Studies on the flight range of certain Simuliidae, with the use of aniline dye marker. Ann. ent. Soc. Amer. 43(4):537-545.

1951. Notes on the Simuliidae (Diptera) of Guatemala, including descriptions of three new species. Ann. ent. Soc. Amer. 44(1):31-58.

1955. The black flies (Diptera, Simuliidae) of Guatemala and their role as vectors of Onchocerciasis. Smithsonian. misc. Coll. 125(1):425 p.

Dampf, A.

1936. Los Ceratopogonidos o jejenes (Insecta, Diptera, Fam. Ceratopogonidae) como transmisores de Filariasis. Medicina, Méx. 268:7 p.

d'Andretta, M.A.V. & C. d'Andretta, Jr.

1945. As espécies neotropicais da família Simuliidae Schiner, 1864 (Diptera-Nematocera). I. *Simulium* (*Eusimulium*) *orbitale* Lutz, 1910, *Simulium* (*Eusimulium*) *pinto* n.sp. e *Simulium nigricornum* Macquart, 1837, sp. inquirendas. Mem. Inst. Osw. Cruz. 43(1):85-152.

1947. Especies neotropicales da familia Simuliidae Schiner (Diptera Nematocera). II. *Lutsimulium cruxi*, n. gen. e n.sp. e nova concepcao da nervacao das asas dos Simuliideos. Mem. Inst. Osw. Cruz. 45(3):667-677.

Díaz Najera, A.

1962. Claves para identificar las larvas del genero *Chaphia* y descripcion de dos nuevas especies. (Diptera: Simuliidae). Rev. Inst. Salubr. Enferm. trop., Méx. 22(3-4):271-287.

Dunn, L.H.

1929. Notes on some insects and other Arthropods affecting man and animals in Colombia. Amer. J. trop. Med. 9(6):493-508.

Dyar, H.G. & R.C. Shannon

1927. The North American two-winged flies of the family Simuliidae. Proc. U.S. nat. Mus. 69(2636):54 p.

Edwards, F.W.

1931. Diptera of Patagonia and South Chile based mainly on material in the British Museum (Natural History). Part II - Fasc. 4. Simuliidae. The British Museum (Natural History), London. p. 121-154.

- Enderlein, G.
1925. Weitere Beiträge zur Kenntnis der Simuliiden und ihrer Verbreitung. Zool. Anz. 62(9-10):201-211.
- 1934. Aussereuropäische Simuliiden aus dem Wiener Museum. S.B. Ges. naturf. Fr. Berl. no. 4-7. pp. 190-195.
- Fairchild, G.B.
1940. Notes on the Simuliidae of Panama (Dipt. Hematocera). Ann. ent. Soc. Amer. 33(4):701-719.
- 1943. An annotated list of the bloodsucking insects, ticks and mites known from Panama. Amer. J. trop. Med. 23(6):569-591.
- Figueres, C.S.
1917. Dos nuevos simulidos de Chile. Bol. Mus. nac. Chile. 10:28-35.
- Flech, H. & E. Abonnenc
1946. Simulides de la Guyane française. I. *S. guianense* Wise 1911, *S. rorotamense* n.sp., *S. maronienae* n.sp. no. 136. 20 p.
- Geigy, R. & A. Herbig
1955. Erreger und Überträger tropischer Krankheiten. Acta trop., Basel. 24:472 p.
- Gibson, C.L. & H.T. Dalmat
1932. Three new potential intermediate hosts of human Onchocerciasis in Guatemala. Amer. J. trop. Med. Hyg. 1(5):848-851.
- Hocking, B. & J.M. Hocking
1962. Entomological aspects of African onchocerciasis and observations on *Simulium* in the Sudan. Bull. World Hlth. Org. 27(4-5):465-472.
- Hoffmann, C.C.
1930. Los Simulidos de la region onchocercosa de Chiapas (con descripcion de nuevas especies). An. Inst. Biol. Univ. Mex. 1(4):293-306.
- 1930a. Über *Onchocerca* im Süden von Mexiko und die Weiterentwicklung ihrer Mikrofilarien in *Eusimulium mooseri*. Arch. Schiffs- u. Tropenhyg. 34(9):461-472.
- Iriarte, D.R.
1943. Contribucion a la Fauna Venezolana. Bol. Lab. Clin. Razetti. 3(11):189-203.
- 1946. La Familia Simuliidae en Venezuela. Bol. Lab. Clin. Razetti. 15(21-22):401-482.
- Lima, J. & C.E. Porto
1940. Simulidos da região neotropical. III. Descrição de novas espécies dos gêneros "*Simulium*" e "*Eusimulium*". Arch. Inst. biol., S. Paulo. 11:189-195. (Abstract used).
- Luis Gonzalez, C., L. Potenza, R. Vogelsang, P. J. Anduze & E.P. Torres
1950. Onchocercosis en Venezuela. Bol. Ofic. sanit. pan-amer. 29(2):147-152.
- Lutz, A.
1917. Terceira Contribuição para o Conhecimento das Espécies brasileiras do Gênero *Simulium*. O Pium do Morte (*Simulium amazonicum*). Mem. Inst. Osw. Cruz. 9(1):63-67.
- 1922. Zoologia Médica - Hematóceros Hematófagos não pertencendo aos Culicídeos. Folha med. 3(12):89-92.

- Lutz, A., H.C. de Sousa Araujo & O. da Fonseca
1918. Viajem scientifica no Rio Parana'e a Assuncion com Volta por Buenos Aires, Montevideo e Rio Grande. Mem. Inst. Osw. Cruz. 10(2):104-173.
- Martorell, L.F.
1939. Insects observed in the State of Aragua, Venezuela, South America. J. Agric. Univ. P.R. 23(4):177-232.
- Massetti, L.
1948. Observaciones sobre la oncocercosis en Mexico. Medicina, Mex. 28(557):217-224.
- Nelson, G.S. & F.R.W. Paster
1962. The identification of infective filarial larvae in Simuliidae. Bull. World Hlth Org. 27(4-5):473-481.
- Nettel, F.R.
1945. Contribucion al estudio de la distribucion de los simulidos en el Estado de Chiapas. Medicina, Mex. 25(495):455-459.
- Orfila, R.H.
1939. Simuliidae (Diptera) de la Republica Argentina. 9. Reun. Soc. argent. Pat. reg., Mendoza. 3:1525-1534.
- Ortiz, C.I.
1944. *Simulium quadrivittatum* Loew. Su presencia en Venezuela. Bol. Lab. Clin. Basetti. 4(14):243-246.
- Pateron, G. & R.C. Shannon
1927. Los Simulidos del Noroeste Argentino. Rev. Inst. bact., B. Aires. 4(7):737-742.
- Robles, R.
1919. Onchocercose humaine au Guatemala produisant la Cefite et "l'Erysipale du Littoral" (Erisipela de la Costa). Bull. Soc. Pat. exot. 12(7):442-460.
- Root, F.M.
1922. Notes on mosquitoes and other blood-sucking flies from Porto Rico. Amer. J. Hyg. 2(4):394-405.
- Smart, J.
1940. Simuliidae (Dipt.) from British Guiana and the Lesser Antilles. Trans. R. ent. Soc. Lond. 90(1):1-11.
- Strong, R.P., G.C. Shattuck, J.C. Bequaert & R.E. Wheeler
1926. Medical report of the Hamilton Rice seventh expedition to the Amazon, in conjunction with the Department of tropical medicine of Harvard University, 1924-1925. Contr. Harv. Inst. trop. Biol. Med. no. 4. 313 p.
- Strong, R.P., J.H. Sandground, J.C. Bequaert & M. Muñoz Ochoa
1930. Onchocerciasis with special reference to the Central American form of the disease. Contr. Dep. trop. Med. Harv. Univ. no. 6. 234 p.
- Vargas, L.
1942. *Simulium fairchildi* Vargas, 1942 n.n., de Panama? Dipt. Simuliidae. Medicina, Mex. 22(420):458-459. (Abstract used).
- 1943. Nuevos datos sobre simulidos mexicanos (Dipt. Simuliidae). Rev. Inst. Salubr. Enferm. trop., Mex. 4(4):359-370.
- 1945. Simulidos del nuevo mundo. Monogr. Inst. Salubr. Enferm. trop., Mex. no. 1. 241 p.

Vargas, L.

1945a. Notas sobre la oncocerciasis. I. Consideraciones sobre la poblacion de simulidos adultos. Rev. Inst. Salubr. Enferm. trop., Mex. 6(1):51-59.

1945b. Notas sobre la oncocerciasis. II. El factor luz y los simulidos adultos. Rev. Inst. Salubr. Enferm. trop., Mex. 6(1):61-66.

1945c. Notas sobre la oncocerciasis. III. Algunos factores que afectan la fijación de las larvas de simulidos. Rev. Inst. Salubr. Enferm. trop., Mex. 6(1):67-70.

1946. Nuevas especies de simulidos de Mexico y consideraciones diversas sobre especies ya descritas. Rev. Inst. Salubr. Enferm. trop., Mex. 9(4):321-369.

—, & A. Díaz Najera

1952. Descripción de la larva de *Onophia aguirrei* (Dalmat, 1949). Rev. Soc. mex. Hist. nat. 13(1-4):53-56.

—, & F. Ruiz Reyes

1949. *Simulium exiguum* infectado con microfilarias de *Onchocerca volvulus*. (*Simulium exiguum* infected with Microfilarias of *Onchocerca volvulus*). An. Inst. Biol. Univ. Mex. 20(1-2):271-274.

—, A. Martínez Palacios & A. Díaz Najera

1946. Simulidos de Mexico. Datos sobre sistematica y morfología. Descripción de nuevos subgéneros y especies. Rev. Inst. Salubr. Enferm. trop., Mex. 7(3):101-192.

Woke, R. A.

1947. Arthropods of sanitary importance in the republic of Nicaragua, Central America. Amer. J. trop. Med. 27(3):357-375.

Wolcott, G. N.

1936. "Insectae Borinquenses." A revised annotated check list of the Insects of Puerto Rico with a Host-plant index by J. I. Otero. J. Agric. Univ. P. R. 20(1):1-627.

C. SAND FLIES

The sand fly entries include a few species of Psychodinae which do not bite but may be pests of man, often causing allergic reactions. Little is to be found in the literature on the biologies and disease transmissions of these species. Most of the data are distributional records.

The tables include 204 species or subspecies most of which are in the large genus *Phlebotomus*.

TABLE 1 - SAND FLIES

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>HERTIGIA</i> <i>hertigia</i> Fairchild	---; ---; 85, 237	Fairchild & Hertig	1959
<i>PHLEBOTOMUS</i> <i>aboumenai</i> Floch & Chassignat	---; ---; 130, 237	Fairchild & Hertig	1950
<i>aolydiferus</i> Fairchild & Hertig	---; ---; 85, 137, 204, 223, 237	Fairchild & Hertig	1959
<i>affinis</i> Mangabeira	---; November; 53	Mangabeira	1942
<i>amazoni</i> Galliard	---; ---; 204, 328	Barretto	1947
<i>alphabeticus</i> da Fonseca	---; May; 53	da Fonseca	1936
<i>amarali</i> Barretto & Coutinho	---; ---; 53	Barretto	1947
<i>amazonensis</i> Root	---; ---; 53, 240	Barretto	1947
<i>antunesi</i> Roseboom	---; ---; 85, 130, 328	Fairchild & Hertig	1959
	---, Jan.-July, Sept.-Dec., in evening and at dusk, rest at foot of large trees in forest; 130'	Floch & Aboumenai	1946 +
<i>anthophorus</i> Addis	---; ---; 204	Fairchild & Hertig	1959
<i>antunesi</i> Coutinho	---; ---; 53, 130	Barretto	1947
<i>apicalis</i> Floch & Aboumenai	---; Jan., Apr., Dec.; 130'	Floch & Aboumenai	1946 +
	---; ---; 130, 137, 204, 237	Fairchild & Hertig	1959
<i>arroyoi</i> Costa Lima	---; ---; 53	Barretto	1947
	---; Jan.-July and Dec., barrows; 130	Floch & Aboumenai	1946 +
<i>arroyoi</i> Pateron & Shannon	---; ---; 37	Shannon & Del Ponte	1927
<i>arboresalis</i> Floch & Aboumenai	---; April-June and Dec., on trees; 130	Floch & Aboumenai	1946 +

TABLE 1 - SAND FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>PHLEBOTOMUS</i> <i>arboralis</i> Floch & Abonnenc (cont.)	---; ---; 137, 237	Fairchild & Hertig	1959
<i>arthuri</i> da Fonseca	---; bite man outdoors, attracted to artificial light, April; 53°	da Fonseca	1936
	---; experimentally infected with <i>Leishmania</i> <i>braziliensis</i> ; 53	Bustamente	1948 +
	---; enters houses; 53	da Fonseca	1939
<i>atroclavatus</i> Knab	---; ---; 237	Fairchild & Hertig	1949
	---; ---; 328, 329	Barretto	1947
<i>auraensis</i> Mangabeira	---; August, November; 53	Mangabeira	1942
<i>avellari</i> Costa Lima	---; ---; 53	Barretto	1947
	---; rare; 237	Fairchild & Hertig	1947
<i>ayrozai</i> Barretto & Coutinho	---; ---; 53	Barretto	1947
	---; Oct., Dec.; 130	Abonnenc	1948 +
<i>baduelensis</i> Floch & Abonnenc	---; ---; 53	Barretto	1947
	---; Dec., coastal forests; 130	Floch & Abonnenc	1950 +
	---; ---; 328	Floch & Abonnenc	1948 +
<i>baityi</i> Damasceno, Causey, & Arouck	---; ---; 53	Barretto	1947
<i>barrettoi</i> Mangabeira	---; August, Sept.; 53	Mangabeira	1942
	---; June, July; 130	Floch & Abonnenc	1946 +
	---; ---; 223, 237	Fairchild & Hertig	1959
<i>basispinosus</i> Barretto & Coutinho	---; ---; 53	Barretto	1947
<i>battistinii</i> Hertig	---; in houses; 240	Pesce & Pardo	1943

TABLE 1 - SAND FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>PHLEBOTOMUS</i>			
<i>baltrami</i> V. & D. M.	---; ---; 137, 204	Fairchild & Hertig	1959
<i>bigeniculatus</i> Floch & Abonnenc	---; Jan.-July, Sept.-Dec.; 130	Floch & Abonnenc	1946 +
<i>bispinosus</i> Fairchild & Hertig	---; ---; 137, 223, 237	Fairchild & Hertig	1959
<i>bourrouli</i> Barretto & Coutinho	---; ---, 53	Barretto	1947
<i>brachipygus</i> Mangabeira	---; Aug., houses; 53	Mangabeira	1942
<i>brachyphallus</i> Mangabeira	---; October; 53	Mangabeira	1941 a
	---; Mar., Apr., June, July; 130	Floch & Abonnenc	1946 +
	---; ---; 204	Dampf	1944
<i>brasiliensis</i> Costa Lima	---; ---; 53 130	Barretto	1947
<i>brumpti</i> Larrousse	---; Sept. rare, attracted to human bait; 53	Galvao & Coutinho	1940
<i>buxiformis</i> Floch & Abonnenc	---; Apr., June, on trees; 130	Floch & Abonnenc	1946 +
<i>campbelli</i> Damasceno, Cauey & Arouck	---; ---; 53	Barretto	1947
<i>cumposi</i> Rodr.	---; ---; 85, 99, 237	Fairchild & Hertig	1959
<i>cardosoi</i> Barretto & Coutinho	---; ---; 53	Barretto	1947
<i>carpentieri</i> Fairchild & Hertig	---; ---; 85, 237	Fairchild & Hertig	1959
<i>carrerasi</i> Barretto	---; ---; 82	Barretto	1946
<i>carvalhoi</i> Damasceno, Cauey, & Arouck	---; ---; 53	Barretto	1947

TABLE 1 - SAND FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>PELEBOTOMUS</i>			
<i>ocetanheirai</i> Damasceno, Causey, & Arnock	---; ---; 53	Barretto	1947
<i>castroi</i> Barretto & Coutinho	---; ---; 53	Barretto	1947
<i>ocuchensis</i> Floch & Abonnenc	---; Jan.-Apr., June, on trees; 130	Floch & Abonnenc	1946 +
<i>ocavernicolus</i> Costa Lima	---; ---; 53	Barretto	1947
<i>ocaymensis</i> Floch & Abonnenc	---; ---; 85, 204, 237, 262	Fairchild & Hertig	1959
	---; Aug., Sept., cracks in brush covered rocks; 130	Floch & Abonnenc	1946 +
	---; ---; 328	Floch & Abonnenc	1948 +
<i>ocaymensis</i> <i>maoiasis</i> Fairchild & Hertig	---; ---; 128, 204	Fairchild & Hertig	1959
<i>ocetairai</i> Causey & Damasceno	---; ---; 53	Barretto	1947
<i>chassigneti</i> Floch & Abonnenc	---; Feb., Aug. and Dec.; 130	Floch & Abonnenc	1946 +
<i>chiapanensis</i> Dampf	---; ---; 85, 204, 237, 262	Fairchild & Hertig	1959
	---; ---; 204*	Dampf	1947,
<i>choti</i> Floch & Abonnenc	---; ---; 53	Barretto	1947
	---; Jan.-June and Sept.-Dec., burrows; 130	Floch & Abonnenc	1946 +
<i>christophersoni</i> Damasceno & Causey	---; ---; 53	Barretto	1947
<i>columbianus</i> Ristorcelli & Dao van Ty	---; ---; 32	Barretto	1947
<i>complexus</i> Mangabeira	---; Oct.; 53	Mangabeira	1941 b

TABLE 1 - SAND FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>PHLEBOTOMUS</i> <i>oortezii</i> Brethes	---; ---; 27, 325	Barretto	1947
<i>oostalmi</i> Mangabeira	---; Jan., burrows; 53	Mangabeira	1942
<i>outinhoi</i> Mangabeira	---; Aug., Oct.; 53	Mangabeira	1942
<i>oruciatus</i> Coquillett	---; in houses; 53	Chagas et al.	1937 +
	---; ---; 85, 113, 137, 204, 223, 237	Fairchild & Hertig	1959
	---; rests on outside walls of houses, tree holes; 127°, 128°, 204°, 237°	Fairchild & Hertig	1948
	---; ---; 238°	Fairchild	1943
	---; ---; 238, 328, 329	Barretto	1947
<i>oruzi</i> Mangabeira	---; ---; 53	Barretto	1947
<i>otnidophorus</i> Fairchild	---; ---; 204	Fairchild & Hertig	1959
<i>oruzi</i> Mangabeira	---; Aug.; 53	Mangabeira	1942
	---; ---; 137	Fairchild & Hertig	1959
<i>damasceni</i> Mangabeira	---; Aug., Sept., tree holes; 53	Mangabeira	1941 d
<i>dasipodageton</i> Castro	---; ---; 53	Barretto	1947
<i>daviei</i> Root	---; ---; 53	Barretto	1947
	---; July, 130	Floch & Abonnenc	1946 +
	---; in houses, possible vector of and experi- mentally infected with <i>Leishmania tropica</i> var. <i>brasiliensis</i> ; 328°	Pifano	1943
<i>deanei</i> Damasceno, Carey, & Arouck	---; ---; 53	Barretto	1947
<i>deleoni</i> Fairchild & Hertig	---; ---; 128, 137, 204	Fairchild & Hertig	1959
	---; ---; 237	Fairchild & Hertig	1947

TABLE 1 - SAND FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>PHLEBOTOMIS</i> <i>del powoi</i> Vargas & Diaz Najera	---; ---; 204	Fairchild & Hertig	1959
<i>dendrophilus</i> Mangabeira	---; July, Aug.; 53	Mangabeira	1942
<i>diabolicus</i> Hall	---; ---; 138, 204	Fairchild & Hertig	1959
<i>dodgei</i> Vargas & Diaz Najera	---; ---; 204	Fairchild & Hertig	1959
<i>treisbachii</i> Causey & Damasceno	---; ---; 53, 130	Barretto	1947
<i>dunhami</i> Causey & Damasceno	---; ---; 53	Barretto	1947
<i>duroni</i> Vargas & Diaz Najera	---; ---; 204	Fairchild & Hertig	1959
<i>dysponotus</i> Fairchild & Hertig	---; ---; 85, 99, 237	Fairchild & Hertig	1959
<i>edwardsi</i> Mangabeira	---; Nov., in burrows; 53	Mangabeira	1941
<i>elongatus</i> Floch & Abonnenc	---; ---; 130	Barretto	1947
<i>equatorialis</i> Mangabeira	---; Aug.; 53	Mangabeira	1942
<i>evandroi</i> Costa Lima & Atunes	---; in houses; 53	Chagas et al.	1937 +
<i>evansi</i> Nuñez Tovar	---; ---; 82	Ristorcelli & Dao vay Ty	1941
	---; ---; 85, 223, 262, 328	Fairchild & Hertig	1959
	---; ---; 328°	Ortiz	1950
<i>falsiformis</i> Floch & Abonnenc	---; Mar.-July; 130	Floch & Abonnenc	1946 +

TABLE 1 - SAND FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>PHLEBOTOMUS</i>			
<i>fariasi</i> Damasceno, Causey, & Arouck	---; ---; 53	Barretto	1947
<i>ferreirai</i> Causey & Damasceno	---; ---; 53	Barretto	1947
<i>fischeri</i> Pinto	---; common, most active after sunset, in dark, damp places by day, in house and woods; 53°	Coutinho & Barretto	1941
	---; bites man outdoors, attracted by light; 53°	da Fonseca	1936
	---; naturally infected with <i>Leishmania</i> , Oct.; 53	Pessoa	1941 +
	---; enters houses; 53	da Fonseca	1939
<i>flaviscutellatus</i> Mangabeira	---; Aug., Nov.; 53	Mangabeira	1942
	---; ---; 130	Barretto	1947
<i>fluviatilis</i> Floch & Abonnenc	---; Feb.-July, tree holes; 130	Floch & Abonnenc	1946 +
<i>fonsecai</i> Costa Lima	---; ---; 51	Barretto	1947
<i>furoatus</i> Mangabeira	---; Aug., Sept., tree holes; 53	Mangabeira	1941 c
	---; ---; 130, 237	Barretto	1947
<i>galindoi</i> Fairchild & Hertig	---; ---; 85, 99, 137, 204	Fairchild & Hertig	1959
	---; 4000 feet elevation; 237	Fairchild & Hertig	1947
<i>gaminariai</i> Cordero, Vogelsang, & Cossio	---; ---; 325	Barretto	1947
<i>geniculatus</i> Mangabeira	---; June; 53	Mangabeira	1941 b
	---; ---; 237	Barretto	1947
<i>gomezi</i> Nitsulescu	---; ---; 53, 85, 223, 237	Fairchild & Hertig	1959
	---; enters houses; 130°, 237°, 328°	Fairchild & Hertig	1948
	---; ---; 328	Barretto	1947

TABLE 1 - SAND FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>PALEBOTOMUS</i>			
<i>guadeloupensis</i> Floch & Abonnenc	---; tree holes; 24	Floch & Abonnenc	1945 +
<i>guianensis</i> Coutinho & Barretto	---; ---; 53	Barretto	1947
	---; rare; 237	Fairchild & Hertig	1947
<i>guyanensis</i> Floch & Abonnenc	---; Apr., June; 130°	Floch & Abonnenc	1946 +
<i>hamatus</i> Fairchild & Hertig	---; crevice in limestone rock near entrance to caves, buttressed roots of large hollow tree containing bats, animal burrows; 237	Fairchild & Hertig	1947
<i>hardisoni</i> Vargas & Diaz Majera	---; ---; 204	Fairchild & Hertig	1959
<i>heckenrothi</i> Floch & Abonnenc	---; Jan., Mar.-July, Dec., burrows; 130	Floch & Abonnenc	1946 +
<i>hirsutus</i> Mangabeira	---; Sept.; 53	Mangabeira	1942
<i>inflatus</i> Floch & Abonnenc	---; Feb.-June; 130	Floch & Abonnenc	1946 +
<i>infrapinnosus</i> Mangabeira	---; Aug.-Nov., burrows; 53	Mangabeira	1941 a
	---; Jan.-June, Aug.-Sept., Dec., entrance of burrows; 130	Floch & Abonnenc	1946 +
<i>inini</i> Floch & Abonnenc	---; Feb.-March; 130	Floch & Abonnenc	1946 +
<i>intermedius</i> Lutz & Neiva	---; naturally infected with and experimental transmission of <i>Leishmania brasiliensis</i> , <i>L. donovani</i> ; 27, 239, 240	Bustamente	1948 +
	---; ---; 27, 130, 239, 240, 328. ---; experimental transmission of and naturally infected with <i>Leishmania brasiliensis</i> , experimentally infected with and transmission of <i>L. donovani</i> ; 53	Barretto	1947
	---; abundant Oct.-Dec.; 53	Pessoa	1941 +
	---; May; 53°	Galvao & Coutinho	1940
	---; ---; 204	Fairchild & Hertig	1959
	---; in houses, feeding on man infected with <i>Leishmania</i> , possible vector of and experimentally infected with <i>L. tropica</i> var. <i>brasiliensis</i> ; 328°	Pifano	1943

TABLE 1 - SAND FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>PHLEBOTOMUS</i>			
<i>japignyi</i> Floch & Abonnenc	---; Mar.-June; 130	Floch & Abonnenc	1946 +
<i>lensi</i> Barretto & Coutinho	---; ---; 52	Barretto	1947
<i>lenti</i> Mangabeira	---; ---; 53	Barretto	1947
<i>litchyi</i> Floch & Abonnenc	---; ---; 328	Floch & Abonnenc	1950 +
<i>limai</i> da Fonseca	---; attracted to human bait, Sep., Oct.; 53	Galvao & Coutinho	1940
<i>lloydi</i> Antunes	---; ---; 53	Barretto	1947
<i>lopesi</i> Demasceno, Causey, & Arouck	---; ---; 53	Barretto	1947
<i>longipalpis</i> Lutz & Haiva	Rotten wood and dirt with decaying organic matter near houses; ---; 53	Castro Ferreira et al.	1938 +
	---; experimentally infected with <i>Leishmania donovani</i> ; 53	Barretto	1947
	---; March-June, in houses; 53	Mangabeira	1942 +
	---; experimentally infected with <i>L. donovani</i> ; 82, 239	Bustamante	1948 +
	---; ---; 85, 128, 204, 237, 262	Fairchild & Hertig	1959
	---; in houses, feeding on man infected with <i>Leishmania</i> , possible vector of and experimentally infected with <i>L. tropica</i> var. <i>brasiliensis</i> ; 328*	Pifano	1943
<i>longispinus</i> Mangabeira	---; July, Aug.; 53	Mangabeira	1942
<i>lutzianus</i> Costa Lima	---; ---; 53	Barretto	1947
	---; Jan.-Mar., May-July and Dec., burrows; 130	Floch & Abonnenc	1946 +
<i>archicouensis</i> Floch & Abonnenc	---; Apr.; 130	Floch & Abonnenc	1946 +

TABLE 1 - SAND FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>PHLEBOTOMUS</i> <i>mangabeirai</i> Barretto & Coutinho	---; ---; 53	Barretto	1947
<i>marajoensis</i> Mudex	---; ---; 328	Barretto	1947
<i>marajoensis</i> Damasceno & Causey	---; ---; 53	Barretto	1947
<i>maripaensis</i> Floch & Abonnenc	---; June; 130	Floch & Abonnenc	1946 +
<i>massai</i> Paterson	---; ---; 27	Shannon & Del Ponte	1927
<i>msirai</i> Causey & Damasceno	---; ---; 53	Barretto	1947
<i>melloi</i> Causey & Damasceno	---; ---; 53	Barretto	1947
<i>microps</i> Mangabeira	---; Apr.; 53	Mangabeira	1942
<i>micropygus</i> Mangabeira	---; July-Sept.; 53	Mangabeira	1942
<i>migonei</i> Franga	---; naturally infected with <i>Leishmania</i> <i>brasiliensis</i> ; 27, 238	Bustamente	1948 +
	---; June, Oct., common in Sept., few attack humans; 53*	Galvao & Coutinho	1940
	---; Jan., Feb., Oct., Nov., naturally infected with <i>L. brasiliensis</i> ; 53	Pessoa	1941 +
	---; ---; 53*, 239, 328	Barretto	1947
	---; in houses, feeding on man infected with <i>Leishmania</i> , possible vector of and experimentally infected with <i>L. tropica</i> var. <i>brasiliensis</i> ; 328*	Pifano	1943
<i>minasensis</i> Mangabeira	---; Jan.; 53	Mangabeira	1942
	---; ---; 237	Fairchild & Hertig	1950
<i>monstruosus</i> Floch & Abonnenc	---; ---; 53	Damasceno & Arouck	1949 +
	---; Mar.-July, burrows; 130	Floch & Abonnenc	1946 +

TABLE 1 - SAND FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>PHLEBOTOMUS</i>			
<i>monticola</i> Costa Lima	---; in house, attracted by light; 53	da Fonseca	1936
<i>monticola</i> <i>inoarum</i> Ristorcelli & Dao van Ty	---; at 5,200 feet elevation; 82	Ristorcelli & Dao van Ty	1941
<i>nitzulescui</i> Costa Lima	---; ---; 53	Barretto	1947
<i>noguohii</i> Shannon	---; all year, abundant July-Aug., at elevations above 4,500 feet, in excavations, caves, rarely enters houses; 240	Hertig	1942
	---; naturally and experimentally infected with <i>Bartonella bacilliformis</i> ; 240	Barretto	1947
	---; ---; 240*	Mera	1943
<i>nordestinus</i> Mangabeira	---; Oct.; 53	Mangabeira	1942 b
	---; ---; 130	Barretto	1947
<i>oliverioi</i> Barretto & Coutinho	---; ---; 53	Barretto	1947
<i>oppidanus</i> Dampf	---; ---; 204	Fairchild & Hertig	1959
<i>osornoi</i> Ristorcelli & Dao van Ty	---; ---; 82	Barretto	1947
<i>oswaldoi</i> Mangabeira	---; June, Aug.-Nov., tree trunks, in houses; 53	Mangabeira	1942
	---; ---; 130	Barretto	1947
<i>ovallesi</i> Ortiz	---; ---; 137, 204, 223, 237, 328	Fairchild & Hertig	1959
<i>pacos</i> Floch & Abonnenc	---; Jan.-Sept., Nov., Dec., burrows; 130	Floch & Abonnenc	1946 +
<i>panamensis</i> Shannon	---; ---; 82, 238, 240	Barretto	1947
	---; ---; 85, 138, 204, 223, 237, 328	Fairchild & Hertig	1959
	---; ---; 237*	Fairchild & Hertig	1948
	---; ---; 328*	Pifano	1949 +

TABLE 1 - SAND FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>PHLEBOTOMUS</i>	---	Lutz	1922
<i>papatasi</i>	---	Morales	1916
Scop.	---; in houses, bites by day, possible vector of 3-day fever; 128		
<i>paracensis</i>	---	Fairchild & Hertig	1959
Costa Lima	---		
<i>pascuali</i>	---	Barretto	1947
Coutinho & Barretto	---		
<i>perezi</i>	---	Mangabeira	1942
Mangabeira	---		
	---	Floch & Abonnenc	1946 +
<i>peruvius</i>	---	Fairchild & Hertig	1959
Fairchild & Hertig	---		
<i>peruensis</i>	---	Hertig	1942
Shannon	---		
	---	Barretto	1947
	---	Hertig	1943
<i>pessozi</i>	---	Barretto	1947
Coutinho & Barretto	---		
<i>pestanai</i>	---	Barretto	1947
Barretto & Coutinho	---		
<i>pilosus</i>	---	Fairchild & Hertig	1959
Damasceno & Causey	---		
<i>pinetis</i>	---	Floch & Abonnenc	1946 +
Floch & Abonnenc	---		
<i>pintoi</i>	---	Barretto	1947
Costa Lima	---		
	---	Floch & Abonnenc	1946 +
<i>punctigeniculatus</i>	---	Damasceno & Arouck	1949 +
Floch & Abonnenc	---		
	---	Barretto	1947
	---	Fairchild & Hertig	1950

TABLE 1 - SAND FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>PHLEBOTOMUS</i>			
<i>quinquefer</i> Dyar	---; ---; 27	Barretto	1947
<i>rickardi</i> da Costa Lima	---; ---; 53	Barretto	1947
<i>rooti</i> Mangabeira	---; Aug., Oct.; 53	Mangabeira	1942
<i>rorotansensis</i> Floch & Abonnenc	---; common Sept.-Dec.; 130	Floch & Abonnenc	1950 +
<i>rosabaldi</i> Fairchild & Hertig	---; ---; 85, 237	Fairchild & Hertig	1959
<i>rostrans</i> Summers	---; ---; 53, 99	Barretto	1947
<i>runcoides</i> Fairchild & Hertig	---; ---; 85, 237	Fairchild & Hertig	1959
<i>sallei</i> Galvao & Coutinho	---; ---; 53	Barretto	1947
<i>sanguinarius</i> Fairchild & Hertig	---; ---; 85, 137, 237	Fairchild & Hertig	1959
<i>saulensis</i> Floch & Abonnenc	---; ---; 53	Damasceno & Arouck	1949 +
	---; ---; 85, 130, 237	Fairchild & Hertig	1959
<i>seriosus</i> Floch & Abonnenc	---; ---; 130	Barretto	1947
<i>serratus</i> Damasceno & Arouck	---; ---; 53	Damasceno & Arouck	1949 +
<i>serpulolimai</i> Damasceno & Caasey	---; ---; 53	Barretto	1947
<i>shannoni</i> Dyar	---; ---; 27, 53, 82, 85, 130, 237, 239 (Tree holes with or without bats, tree buttresses, rock crevices, light traps, all year, peak January)	Fairchild & Hertig	1950
	---; Sept., Oct., rare; 53*	Galvao & Coutinho	1940 +

TABLE 1 - SAND FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>PHLEBOTOMUS shannoni</i> Dyar (cont.)	---; ---; 85, 137, 204, 223, 239 ---; ---; 238°	Fairchild & Hertig Fairchild	1959 1943
<i>singularis</i> Costa Lima	---; ---; 53	Barretto	1947
<i>sordellii</i> Shannon & Del Ponte	---; ---; 27, 328	Barretto	1947
<i>sousaastroi</i> Demasceno & Causev	---; ---; 53	Barretto	1947
<i>spinoripes</i> Floch & Abonnenc	---; Apr.-July, Dec., burrows; 130	Floch & Abonnenc	1946 +
<i>spinosus</i> Floch & Abonnenc	---; Jan.-Apr., June-July, Nov., on trees; 130 ---; ---; 237	Floch & Abonnenc Hertig & Fairchild	1946 + 1950
<i>squamiventris</i> Lutz & Maiva	---; ---; 53, 82, 240, 328 ---; Mar.-June; 130 ---; inland; 297	Barretto Floch & Abonnenc Bonne	1947 1946 + 1924
<i>steatopygus</i> Fairchild & Hertig	---; ---; 204	Fairchild & Hertig	1959
<i>suia</i> Rozeboom	---; ---; 237, 328	Irisarte	1944
<i>sylvionius</i> Floch & Abonnenc	---; ---; 130	Barretto	1947
<i>tactarius</i> Dampf	---; ---; 204 ---; ---; 237	Fairchild & Hertig Fairchild & Hertig	1959 1950
<i>trapidot</i> Fairchild & Hertig	---; ---; 85, 99, 137, 137	Fairchild & Hertig	1959
<i>trivassali</i> Mangabeira	---; Aug.; 53 ---; Jan.-June, Aug., Oct., Dec., burrows; 130 ---; rare, 2400 feet elevation, animal burrows; 237	Mangabeira Floch & Abonnenc Fairchild & Hertig	1942 1945 + 1947

TABLE 1 - SAND FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>PHLEBOTOMUS</i>	---; Aug., Sept.; 53	Mangabeira	1942
<i>triacontus</i> Mangabeira	---; ---; 237	Barretto	1947
<i>trichopygus</i> Floch & Abonnenc	---; ---; 130	Barretto	1947
<i>trinidadiansis</i> Newstead	---; common, tree buttresses; 53°, 82°, 130°, 204°, 237°, 328°, 329°	Fairchild & Hertig	1948
	---; ---; 53, 85, 137, 204, 223, 237	Fairchild & Hertig	1959
	---; rare; 311	Newstead	1922
<i>trispinosus</i> Mangabeira	---; Aug., Sept.; 53	Mangabeira	1942
<i>trogodytes</i> Lutz	---; ---; 53	Galvao & Coutinho	1940
<i>tuberculatus</i> Mangabeira	---; July-Oct., tree holes, in houses; 53	Mangabeira	1941 c
<i>tupynambai</i> Mangabeira	---; June; 53	Mangabeira	1942
<i>ubiquitalis</i> Mangabeira	---; Aug.-Oct.; 53	Mangabeira	1942
<i>undulatus</i> Fairchild & Hertig	---; ---; 128, 137, 204, 237	Fairchild & Hertig	1959
<i>unisetosus</i> Mangabeira	---; Oct.; 53	Mangabeira	1941 b
<i>venezuelensis</i> Floch & Abonnenc	---; July-Sept.; 328	Floch & Abonnenc	1948 +
<i>verrucarum</i> Townsend	---; all year, enter houses freely, bite man in and outdoors; 240°	Hertig	1942
	---; experimentally and naturally infected with and vector of <i>Bartonella bacilliformis</i> ; 240°	Barretto	1947
	---; ---; 328	Floch & Abonnenc	1950 +
<i>vesiciferus</i> Fairchild & Hertig	---; ---; 85, 223	Fairchild & Hertig	1959
	---; large hollow tree containing bats, animal burrows, rock crevices, tree buttresses; 237	Fairchild & Hertig	1947

TABLE - SAND FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>PHLEBOTOMUS</i>	---		
<i>vespertilionis</i> Fairchild & Hertig	---; ---; 85	Fairchild & Hertig	1959
	---; bat cave, hollow tree with bats, tree buttresses, all year, common, June-Dec.; 237	Fairchild & Hertig	1947
<i>vesicator</i> (Coquillett)	---; ---; 204	Dampf	1944
<i>villalai</i> Mangabeira	---; June, Aug.-Nov., in tree trunk, houses; 53	Mangabeira	1942
	---; ---; 204	Dampf	1947
<i>vindicator</i> Dampf	---; ---; 204	Dampf	1944
<i>viriosus</i> Fairchild & Hertig	---; ---; 85, 237	Fairchild & Hertig	1959
<i>volcanensis</i> Fairchild & Hertig	---; ---; 237	Fairchild & Hertig	1950
<i>wagleyi</i> Causey & Damasceno	---; ---; 53	Barretto	1947
<i>walkerii</i> Newstead	---; ---; 51, 53	Barretto	1947
<i>whitmani</i> Antunes &	---; naturally and experimentally infected with <i>Leishmania brasiliensis</i> ; 53	Barretto	1947
	---; May-Oct., common Sept. and Oct.; 55	Galvao & Coutinho	1940
	---; Apr.; 130	Floch & Abonnenc	1946 +
<i>williamsi</i> Damasceno, Causey, & Arouck	---; ---; 53	Barretto	1947
<i>wilsoni</i> Damasceno & Causey	---; ---; 53	Barretto	1947
<i>wirthi</i> Vargas & Diaz Majera	---; ---; 204	Fairchild & Hertig	1959
<i>ylephiletor</i> Fairchild & Hertig	---; ---; 85, 137, 223	Fairchild & Hertig	1959
<i>yuocatanensis</i> Gelliard	---; ---; 204	Bequaert	1938 +

TABLE 1 - SAND FLIES (conclusion)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>PHLEBOTOMUS</i> <i>sulicentis</i> Floch & Abonnenc	---; July-Sept.; 328	Floch & Abonnenc	1948 +
<i>WARILEYA</i> <i>rotundipennis</i> Fairchild & Hertig	---; ---; 85, 237	Fairchild & Hertig	1959

TABLE 2 - SUMMARY OF DISEASES OR DISEASE ORGANISMS TRANSMITTED BY
SAND FLIES

SPECIES	DISEASE ORGANISM				DISTRIBUTION
	VIRUS & RICKETTSIA	PROTOZOA	HELMINTHS	OTHER	
<i>PHLEBOTOMUS</i> <i>migonei</i> Franca		<i>Leishmania</i> <i>brasilensis</i>			53
<i>noguohii</i> Shannon				Bartonellosis	240
<i>panamensis</i> Shannon		<i>Leishmania</i> <i>brasilensis</i>			328 +
<i>verrucarum</i> Townsend				<i>Bartonella</i> <i>bacilliformis</i>	240

LITERATURE CITED

- Abonnenc, E.
1948. *Phlebotomes de la Guyane Francaise (XIV)*. Sur *P. ayrozaei* Barretto et Coutinho, 1940 et *P. parnensis* Costa Lima 1941. Publ. Inst. Pasteur Guyane. no. 177. 4 p.
- Ayroza Galvão, A. L. & J. O. Coutinho
1940. Contribuição ao estudo dos flebotomos de São Paulo. Dipt. 1a Nota. Rev. Ent., Rio de J. 11(1-2):427-440.
- Barretto, M. P.
1946. Uma nova espécie de flebotomo da Colômbia e chave para a determinação das espécies afins (Diptera, Psychodidae). Anais Fac. Med. Univ. S Paulo. 22:279-293. (Abstract used).
- 1947. Catálogo dos flebotomos americanos. Archos Zool. Est. S Paulo. 5:177-242.
- Bequaert, J. C.
1938. The distribution of *Phlebotomus* in Central and South America. Publ. Carneg. Instn. no. 499. p. 229-235.
- Bonne, C.
1924. La leishmaniose cutanée dans la Guyane hollandaise. Bull. Soc. Pat. exot. 17(4):293-295.
- Bustamente, M. E.
1948. Epidemiologia de la leishmaniasis en America. Bol. Ofic. sanit. pan-amer. 27(7):611-618.
- Castro Ferreira, L., D. Mangabeira Filho, L. Deane & A. W. Chagas
1938. Notas sobre a transmissão da leishmaniose visceral americana. Hospital, Rio de J. 14(5):1077-1087.
- Chagas, E. & others
1937. Leishmaniose Visceral Americana. (Nova entidade morbida do homem na America do Sul.) Relatório dos trabalhos realizados pela comissão encarregada do estudo da Leishmaniose Visceral Americana em 1936. Mem. Inst. Osw. Cruz. 32(3):321-390.
- Coutinho, J. O. & M. P. Barretto
1941. Dados bionômicos sobre o *Phlebotomus fischeri* Pinto, 1926 (Diptera, Psychodidae). Rev. brasil. Biol. 1(4):423-429.
- da Fonseca, F.
1936. *Flébotomus* das cercanias da cidade de S. Paulo, com a descrição de *Flébotomus arthuri* n. sp. e *alphabeticus* n. sp. (Dipt. Psychodidae). Rev. Ent., Rio de J. 6(3-4):323-327.
- 1939. Descrição do macho de *Flébotomus arthuri* Fonseca 1936 (Diptera, Psychodidae). Mem. Inst. Butantan. 12:181-184.
- Damasceno, R. G. & R. Arouck
1949. Estudos sobre *Flébotomus* no vale Amazonico. Parte VII -- Descrição de uma nova especie, *Flébotomus serranus*. (Diptera, Psychodidae). Rev. Serv. Saúde públ., Rio de J. 2(3):843-848.

Dampf, A.

1944. Notas sobre flebotómidos mexicanos. I. Observaciones generales y descripción de dos especies nuevas (*Phlebotomus oppidanus* y *Phl. vindicator*) encontradas en la ciudad de México (Ina. Diptera, Fam. Phlebotomidae). Rev. Soc. mex. Hist. nat. 5(3-4):237-254.

1947. Notas sobre flebotómidos mexicanos. II. *Phlebotomus almasani* Galliard 1934 y *P. yucatanensis* Galliard 1934. Medicina, Méx. 27(530):179-183. (Abstract used).

- 1947a. Notas sobre flebotómidos mexicanos. III. Un nuevo flebotómo. (*P. chiapanensis* n. sp.) aparentemente antropófilo. Medicina, Méx. 27(530):179-183.

Fairchild, G. B.

1943. An annotated list of the bloodsucking insects, ticks and mites known from Panama. Amer. J. trop. Med. 23(6):569-591.

& M. Hertig

1947. Notes on the *Phlebotomus* of Panama (Diptera, Psychodidae). I. The Subgenus *Briumptomyia* Franca and Parrot 1921. Ann. ent. Soc. Amer. 40(4):610-617.

1948. Notes on the *Phlebotomus* of Panama (Diptera, Psychodidae). III. *P. cruciatus* Coq., *trinidadensis* Newst. and *gomezi* Nitz. Ann. ent. Soc. Amer. 41(2):247-257.

1949. Notes on the *Phlebotomus* of Panama (Diptera, Psychodidae). IV. *P. atroclavatus* Knab, *P. cayennensis* Floch and Abonnenc, *P. chiapanensis* Dampf and some related forms from the West Indies and Mexico. Ann. ent. Soc. Amer. 41(4):455-467.

1950. Notes on the *Phlebotomus* of Panama. VI. *Phlebotomus shannoni* Dyar and related species. Ann. ent. Soc. Amer. 43(4):523-533.

1959. Geographic distribution of the *Phlebotomus* sandflies of Central America (Diptera: Psychodidae). Ann. ent. Soc. Amer. 52(2):121-124.

Floch, H. & E. Abonnenc.

1945. Description d'un phlébotome nouveau de la Guadeloupe. Publ. Inst. Pasteur Guyane. no. 96. 4 p.

1946. Phlébotomes de la Guyane française. (XVII). *P. Maripaensis* n. sp. et *P. sp. de Maripa*. Publ. Inst. Pasteur Guyane. no. 142. 7 p.

1948. Phlébotomes de Venezuela (LL). Description de *P. atroclavatus* Knab, 1913, de *P. evansi* Kunez Tovar, 1924, de *P. cayennensis* Floch et Abonnenc, 1941, de *P. barbaensis* Floch et Abonnenc, 1941, de *P. punctigeniculatus* Floch et Abonnenc, 1944, de *P. venezuelensis* n. sp. et de *P. zulianensis* n. sp. Publ. Inst. Pasteur Guyane. no. 178. 24 p.

1950. Phlébotomes de Venezuela (III). Description d'une espèce nouvelle: *Phlebotomus lionyi*. Publ. Inst. Pasteur Guyane. no. 208. 5 p.

- Floch, H. & E. Abonnenc
1950. Sur la synonymie de quelques phlébotomes Sud-Américains. Publ. Inst. Pasteur Guyane. no. 212. 13 p.
- Hertig, M.
1942. *Phlebotomus* and Carrión's Disease. I. Introduction. II. Transmission experiments with wild sandflies. III. Field studies on *Phlebotomus*. IV. Massive infections of the sandfly proboscis with unidentified micro-organisms. Amer. J. trop. Med. 22(4):75 p. (Abstract used).
- 1943. Notes on Peruvian sandflies with descriptions of *Phlebotomus battistinii*, n. sp., and *P. pescei*, n. sp. Amer. J. Hyg. 37(3):246-254.
- & G. B. Fairchild
1950. Notes on the *Phlebotomus* of Panama. V. The second sternite as a taxonomic character (Diptera, Psychodidae). Proc. ent. Soc. Wash. 52(2):91-95.
- Iriarte, D. R.
1944. Sobre una nueva especie de flebótomo en el país: *Flebotomus (Brumptomyia) suis*, Rozeboom 1940. Bol. Lab. Razetti. 4(15):268-273, 275.
- Lutz, A.
1922. Zoologia Médica--Nematoceros Hematófagos não pertencendo aos Culicídeos. Folha med. 3(12):89-92. (Abstract used).
- Mangabeira, O.
1941. Contribuição ao estudo dos Flebotomos. *Flebotomus Edwardsi* n. sp. (Diptera Psychodidae). Mem. Inst. Osw. Cruz. 36(2):201-213.
- 1941a. Contribuição ao estudo dos Flebotomos. *Evandromyia* n. subg. (Diptera Psychodidae). Mem. Inst. Osw. Cruz. 36(2):215-223.
- 1941b. Contribuição ao estudo dos Flebotomos. *Psychodopygus* n. subg. (Diptera: Psychodidae). Mem. Inst. Osw. Cruz. 36(3):237-250.
- 1941c. Contribuição ao estudo dos Flebotomos. *Viannamyia* n. subg. (Diptera: Psychodidae). Mem. Inst. Osw. Cruz. 36(3):251-262.
- 1941d. Contribuição ao estudo dos Flebotomos. *Flebotomus (Pintomyia) damascenoi* n. sp. (Diptera: Psychodidae). 36(3):369-377.
- 1942. Contribuição ao estudo dos Flebotomos. (Diptera: Psychodidae) Descrição dos machos de 24 novas espécies. Mem. Inst. Osw. Cruz. 37(2):111-218.
- 1942a. Contribuição ao estudo dos Flebotomos. (Diptera: Psychodidae) *Flebotomus oswaldoi*, Mangabeira, 1942. Mem. Inst. Osw. Cruz. 37(3):287-295.
- 1942b. Contribuição ao estudo dos Flebotomos. (Diptera: Psychodidae) *Flebotomus nordestinus* n. sp. Mem. Inst. Osw. Cruz. 37(3):327-331.
- Mera, B.
1943. Present status of human bartonellosis. Bol. Ofic. sanit. pan-amér. 22(4):304-309.

- Morales, R.
1916. El *Phlebotomus papatasi* en Guatemala. An. Zool. aplic. 3(1):27-29.
- Newstead, R.
1922. A new species of *Phlebotomus* from Trinidad. Ann. trop. Med. Parasit. 16(1):47-50.
- Ortiz, I.
1950. Notas en *Phlebotomus* (Diptera, Psychodidae) I. Sobre la armadura genital del macho de *Phlebotomus panamensis* Shannon, 1926. Arch. venez. Pat. trop. 2(1):83-88.
- Pesce, H. & L. Pardo
1943. Notes on cutaneous leishmaniasis and *Phlebotomus* in the Province of Andahuaylas, Peru. Amer. J. Hyg. 37(3):225-228.
- Pessoa, S. B.
1941. Dados sobre a epidemiologia da leishmaniose tegumentar em Sao Paulo. Arch. Hyg., S. Paulo. 6(11):103-121.
- Pifano, C. F.
1943. Notas sobre entomologia médica venezolana. I. Flebotomos transmisores de leishmaniasis tegumentaria en el valle del Yaracuy. Bol. Ent. venezol. 2(2):99-102.
- 1949. La leishmaniasis tegumentaria en Venezuela. Arch. venez. Pat. trop. 1(2):170-182.
- Ristorcelli, A. & Dao Van ly
1941. Mission E. Brumpt et L.-Ch. Brumpt en Colombie. III. Phlébotomes d'une région de Colombie où la verruga du Pérou est devenue endémique depuis trois ou quatre ans. Ann. Parasit. hum. comp. 18(1-3):72-74.
- Shannon, R. C. & E. Del Ponte
1927. Cuatro notas sobre especies nuevas de Dípteros Nematóceros, hematofagos o no, de la República Argentina. Rev. Inst. bact., B. Aires. 4(7):724-736.

D. MIDGES

The midges include representatives from the family Ceratopogonidae. In some areas the biting species, especially *Culiseta*, are called "sand flies". Little is known of the biology of individual species; however, the larvae are known to occur either in water or in moist terrestrial environments. In addition to their importance as pests, these biting midges are vectors of several disease organisms in some areas. In this report, however, only *Culiseta inornata* (Poey) was recorded to transmit *Mansonella ozzardi* in the West Indies.

The tables include 178 species or subspecies, most of which are in the large genus *Culiseta*.

TABLE 1 - MIDGES

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CENTROHYNCHUS</i>			
<i>pusillus</i> Lutz	---; ---; 53°	Lutz	1913
<i>stelliger</i> Lutz	---; edge of ravines; 53°	Lutz	1913
<i>CULICOIDES</i>			
<i>isotylus</i> Lutz	---; ---; 53, 204, 237, 328	Wirth & Blanton	1939
<i>methionotus</i> Wirth & Blanton	---; ---; 237	Wirth & Blanton	1955 a
<i>albidulinus</i> Simoes Barbosa	---; ---; 99, 237	Wirth & Blanton	1959
<i>ambiculorum</i> Macfie	---; at light near house; 204	Macfie	1948
<i>allumacula</i> Root & Hoffman	---; May-Oct.; 204	Vargas	1945
<i>alvirantoi</i> Wirth & Blanton	---; ---; 237	Wirth & Blanton	1959
<i>amazonius</i> Macfie	---; April-May; 53°	Macfie	1935
	---; ---; 53	da Costa Lima	1937
	---; on beaches; 130°	Floch & Abonnenc	1942 +
	---; ---; 329°	Adamson	1939
<i>antefurcatus</i> Wirth & Blanton	---; ---; 237	Wirth & Blanton	1959
<i>arabae</i> Fox & Hoffman	---; ---; 237, 328, 329	Wirth & Blanton	1959
	---; ---; 238	Simoes Barbosa	1947 +
<i>aureus</i> Ortiz	---; ---; 237, 328	Wirth & Blanton	1959
<i>azureus</i> Wirth & Blanton	---; ---; 237	Wirth & Blanton	1959
<i>bahiensis</i> Simoes Barbosa	---; ---; 53	Vargas	1949
<i>balnapambensis</i> Ortiz & Leon	---; ---; 99, 237	Wirth & Blanton	1959

TABLE 1 - MIDGES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CULICOIDES</i>			
<i>bambusicola</i> Lutz	Bamboo holes; ---; 53	Lutz	1913
<i>barbosai</i> Wirth & Blanton	---; ---; 17, 237	Wirth & Blanton	1959
<i>baueri</i> Hoffman	---; Jan.-July, Nov.; 204	Vargas	1945
<i>bermudensis</i> Williams	---; ---; 48	Wirth & Williams	1957
<i>bimaculatus</i> Floch & Abonnenc	---; ---; 130	Vargas	1949
<i>borinqueni</i> Fox & Hoffman	Tree holes; ---; 4	Fox	1946
<i>cacozielus</i> Macfie	---; attracted to light; 204	Macfie	1948
<i>camposi</i> Ortiz & León	---; ---; 99, 237	Wirth & Blanton	1959
<i>caprilesi</i> Fox	---; ---; 53, 128, 237	Wirth & Blanton	1959
	---; ---; 328	Wirth	1955
<i>caridei</i> (Brêthes)	---; ---; 27°, 53°, 240°, 325°	Simoes Barbosa	1947 +
	---; ---; 27, 325	Wirth	1960
	---; ---; 53	Vargas	1949
<i>carpenteri</i> Wirth & Blanton	---; light trap; 237, 238	Wirth & Blanton	1953 b
<i>carsimelas</i> Wirth & Blanton	---; at light trap; 237, 238	Wirth & Blanton	1955
<i>castillae</i> Fox	---; ---; 99, 128, 137, 237, 328	Wirth & Blanton	1959
<i>chrysonotus</i> Wirth & Blanton	---; ---; 237	Wirth & Blanton	1956

TABLE 1 - MIDGES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CULICOIDES</i>			
<i>cockerelli</i>			
var. <i>tristriatulus</i> Hoffman	---; Sept.; 204	Vargas	1945
<i>columbianus</i> Kieffer	---; ---; 82	Kieffer	1917
<i>commatis</i> Wirth & Blanton	---; ---; 237	Wirth & Blanton	1959
<i>conjunctus</i> Kieffer	---; ---; 130	Vargas	1949
<i>copiosus</i> Root & Hoffman	---; June, Sept.; 204	Vargas	1945
<i>coutinhoi</i> Barnetto	---; ---; 53	Vargas	1949
	---; ---; 130	Wirth & Blanton	1956 a
<i>cova-garciai</i> Ortiz	---; at light; 128	Wirth	1955
	---; ---; 237, 328	Wirth & Blanton	1959
<i>crepuscularis</i> Malloch	---; ---; 48	Wirth & Williams	1957
	---; ---; 204	Vargas	1945
<i>crescentis</i> Wirth & Blanton	---; ---; 204, 223, 237	Wirth & Blanton	1959
<i>daedaloides</i> Wirth & Blanton	---; ---; 237	Wirth & Blanton	1959
<i>daedalus</i> Macfie	---; ---; 137, 237, 328	Wirth & Blanton	1959
	---; attracted to light; 204	Macfie	1948
<i>dampfi</i> Root & Hoffman	---; trap lamp, April; 204	Root & Hoffmann	1937
	---; ---; 204	Vargas	1945
<i>dasyophorus</i> Macfie	---; ---; 129, 237	Vargas	1949
	---; ---; 238	Simoes Barbosa	1947 +

TABLE 1 - MIDGES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CULICOIDES</i>	---		
<i>deadalus</i>	---; at light; 128	Wirth	1955
Macfie	---; attracted to light; 204	Macfie	1948
<i>debilipalpis</i>	---		
Lutz	---; ---; 18, 99, 128, 129, 130, 137, 223, 237, 328, 329	Wirth & Blanton	1959
	---; ---; 23, 24	Simoes Barbosa	1947 +
	---; ---; 27°	Simoes Barbosa	1953 +
	---; at dusk; 53	Lutz	1913
	---; ---; 128°	Wirth	1955
	---; ---; 204	Macfie	1948
	---; ---; 239	Lutz et al.	1918
	Rotting pods of cocoa, bamboo stumps; ---; 329	Williams	1964
	---; ---; 329°	Adamson	1939
<i>debilipalpis</i>			
<i>equatoriensis</i>	---		
Simoes Barbosa	---; ---; 99	Simoes Barbosa	1953 +
<i>debilipalpis</i>			
<i>glabrator</i>	---		
Macfie	---; ---; 53, 129, 237	Vargas	1949
<i>decor</i>	---		
Williston	---; ---; 24	Vargas	1949
	---; ---; 237	Wirth & Blanton	1956
	Bracts of <i>Guamania</i> ; ---; 329	Williams	1964
<i>diabolicus</i>	---		
Hoffman	---; ---; 53, 82, 85, 99, 128, 130, 137, 204, 223, 237, 297, 328, 329	Wirth & Blanton	1959
	---; ---; 82	da Costa Lima	1937
	---; bites man during or immediately after light rain; 128°	Wirth	1955
	---; naturally infected with microfilaria; 204	Vargas	1945
	Rotting cocoa pods, rotting stump of "fig", <i>Musa</i> , edge of fish ponds, open to sky, with short grass, water level fluctuates; ---; 329	Williams	1964
	---; ---; 329°	Adamson	1939

TABLE 1 - MIDGES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CULICOIDES</i>			
<i>diorourus</i> Wirth & Blanton	---; ---; 137, 204, 223, 237	Wirth & Blanton	1959
<i>diminutus</i> Barbosa	---; at light; 223. ---; emergence traps at high tide; 238	Woke	1954
<i>domi</i> Wirth & Blanton	---; ---; 237	Wirth & Blanton	1959
<i>efferus</i> Fox	---; ---; 137, 223, 237, 240	Wirth & Blanton	1959
<i>elutus</i> Macfie	---; ---; 204, 237	Wirth & Blanton	1959
<i>eublepharus</i> Macfie	---; ---; 129	Macfie	1948
	---; ---; 204	Vargas	1948
<i>evansi</i> Wirth & Blanton	---; ---; 237	Wirth & Blanton	1959
<i>fairchildi</i> Wirth & Blanton	---; at light trap; 237, 238	Wirth & Blanton	1955
<i>fieldi</i> Wirth & Blanton	---; ---; 137, 237	Wirth & Blanton	1959
<i>flavivenula</i> Lutz	---; ---; 53	da Costa Lima	1937
	---; small woods; 130	Floch & Abonnenc	1942 +
<i>floridensis</i> Beck	---; ---; 48	Wirth & Williams	1957
<i>fluviialis</i> Macfie	---; ---; 129, 137, 328	Wirth & Blanton	1959
	Rotting cocoa pods; ---; 329	Williams	1964
<i>fluviatilis</i> Lutz	---; persistent, vicious biters in shade during late afternoon and early evening; 237*	Dunn	1934
<i>foxi</i> Ortiz	---; ---; 22, 53, 137, 223, 237, 328	Wirth & Blanton	1956 a
	Edge of grassy, shaded drainage stream in cocoa plantation, rain-soaked horse and cow manure, rotting cocoa pods, edge of tide-influenced drainage ditch, short grass, exposed to sun; ---; 329	Williams	1964

TABLE 1 - MIDGES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CULICOIDES</i> <i>furens</i> (Poey)	Waterlogged sand with humus in mangrove swamps; bites evening and early morning within one-half mile of breeding places; 17°	Myers	1933 +
	---; ---; 17, 18, 21, 24, 53, 137, 237, 346	da Costa Lima	1937
	---; bites man at daybreak and sunset; 18°	Stephens	1923
	---; ---; 19°. ---; ---; 23. ---; active at night, July; 329	Fox	1946
	---; common at seashore; 22	Van Volkenberg	1935
	Pools above tidewater; ---; 22	Wolcott	1936
	---; bite man in evening and during day in shade; 22°	Root	1922
	---; light traps, May; 22	Kohler & Fox	1951
	---; ---; 128	Simoes Barbosa	1947 +
	---; in evening around lamps; 130	Floch & Abonnenc	1942 +
	Wet sand near lagoons and canals; enters houses; 137°	Painter	1927
	---; along coast; 204	Vargas	1945
	---; common and attracted to light; 223°	Woke	1947
	Tidal mangrove swamp at 175-180 feet altitude; naturally infected with <i>Mansonella ozzardi</i> ; 237°	Trapido	1947
	Mangrove swamps, salt and brackish coastal swamps; intermediate host of <i>Mansonella ozzardi</i> , a non-pathogenic filarial blood parasite of man; 238°	Fairchild	1943
	---; taken at light, enters houses; 238°	Woke	1954
	Tidal mangrove swamp, sunny edge of river mouth, salt-marsh grass, edge of forest stream which rises and falls rapidly with heavy rain, having decaying vegetation and sandy soil; ---; 311	Williams	1964
	---; ---; 328°	Briceno- Iragorri	1949
	---; ---; 329°	Adamson	1939
	---; infected with <i>Mansonella ozzardi</i> ; 346	Nelson & Paster	1962
	---; ---; 346*	Dampf	1936

TABLE 1 - MIDGES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CULICOIDES</i>			
<i>furens</i>			
var. <i>maculithorax</i> Will	---; ---; 69, 138	Kieffer	1925
<i>gabaldoni</i> Ortiz	---; ---; 128, 137, 237	Wirth & Blanton	1959
	Decaying cocoa pods; ---; 329	Williams	1964
<i>galindoi</i> Wirth & Blanton	---; light trap; 237, 238	Wirth & Blanton	1953 a
<i>germanus</i> Macfie	---; prefers low altitudes, taken at light; 128	Wirth	1955
	---; ---; 129	Vargas	1949
<i>gibsoni</i> Wirth	---; rare; 128°	Wirth	1955
<i>gigas</i> Root & Hoffman	---; ---; 237	Vargas	1949
<i>ginesi</i> Ortiz	---; ---; 237, 328	Wirth & Blanton	1953 a
<i>glabellus</i> Fox & Hoffman	---; ---; 137, 223, 237, 329	Wirth & Blanton	1959
	Rotting cocoa pods, rotting banana stumps; ---; 329	Williams	1964
<i>glabrior</i> Macfie	---; ---; 129, 237	Vargas	1949
<i>gorgasii</i> Wirth & Blanton	---; at light trap; 237, 239	Wirth & Blanton	1953 a
<i>guadeloupensis</i> Floch & Abonnenc	---; ---; 24	Floch & Abonnenc	1950 +
<i>guttatus</i> (Coquillett)	---; at light traps; 22	Fox & Kohler	1950 +
	---; bites man in full sun, especially in morning; 53°	Neiva & Penna	1916
	---; enters houses, attracted to light; 53	Lutz	1913
	---; ---; 82, 128, 223, 237, 329	Vargas	1949
	---; ---; 85, 129, 130, 238	Simoes Barbosa	1947 +
	---; ---; 99	Simoes Barbosa	1953 +

TABLE 1 - MIDGES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CULICOIDES</i>			
<i>guttatus</i> (Coquillett) (cont.)	---; in forest, in houses at light, naturally infected with filaria; 204	Macfie	1948
	---; taken at light; 237°, 238°	Woke	1954
	---; ---; 329°	Adamsen	1939
<i>guttatus</i> <i>filariferus</i> Hoffman	---; ---; 204	Vargas	1949
<i>guyanensis</i> Floch & Abonnenc	---; ---; 21, 22, 23, 128, 137, 204, 223, 237, 328, 329	Wirth & Blanton	1959
	---; ---; 53, 130, 238	Vargas	1949
	---; at coast; 130°	Floch & Abonnenc	1942 +
	---; taken at light; 238°	Woke	1954
	Tidal mangrove swamp; ---; 329	Williams	1964
<i>guyanensis</i> <i>stubaensis</i> Fox	---; ---; 329	Vargas	1949
<i>haematopotus</i> Malloch	---; Jan -July; 204	Vargas	1945
<i>heliconiae</i> Fox & Hoffman	---; ---; 137, 237, 240, 328, 329	Wirth & Blanton	1959
	Decaying flowers of <i>Heliconia elongata</i> and Cachibou, <i>Calathea lutea</i> , rotting banana stump; ---; 329	Williams	1964
<i>hertigi</i> Wirth & Blanton	---; light trap; 237, 238	Wirth & Blanton	1953 a
<i>hirtipes</i> Kieffer	---; ---; 240	da Costa Lima	1937
<i>hoffmanni</i> Fox	Tree holes; light traps, rare; 22	Fox & Kohler	1950 +
	---; ---; 328, 329	Vargas	1949
	---; ---; 329°	Fox	1946
<i>horticula</i> Lutz	---; ---; 53	Lutz	1913
	---; on beaches, bites at dusk; 130°	Floch & Abonnenc	1942 +
	---; ---; 239	Lutz et al.	1918

TABLE 1 - MIDGES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CULICOIDES</i>			
<i>hylas</i> Macfie	---; ---; 129, 137, 223, 237, 240	Wirth & Blanton	1959
<i>imitator</i> Ortiz	---; ---; 237, 328	Wirth & Blanton	1959
<i>inamollas</i> Fox & Hoffman	---; light traps, common, May; 22	Kohler & Fox	1951
<i>indianus</i> Macfie	---; ---; 129	Vargas	1949
<i>insignis</i> Lutz	---; ---; 21, 22, 53, 82, 130, 137, 204, 223, 237, 297, 328, 329	Wirth & Blanton	1956 a
	---; at daylight, in dry ocean floors; 53°	Lutz	1913
	Edge of tidal drainage ditch, short grass, open to sky, edge of <i>Tilapia</i> fish ponds, short grass, open to sky, water level fluctuates, coconut swamp, brackish water, shaded water level fluctuates, spring outcrop in pasture, open to sky, rain run-off from cow manure pile, edge of shaded stream, sandy soil with decomposing leaves, no growing vegetation, edge of partially shaded stream, tall grass, river edge, tidal, salt-marsh grass, open to sky; ---; 329	Williams	1964
<i>insignis</i> <i>trinidadensis</i> Hoffman	---; ---; 329	Vargas	1949
<i>iriartei</i> Fox	---; ---; 137, 237, 328	Wirth & Blanton	1959
<i>jamaicensis</i> Edwards	---; light traps, May; 22	Kohler & Fox	1951
	---; ---; 23	Simoes Barbosa	1947 +
	---; taken at light; 128	Wirth	1955
	Rotting calabash; ---; 329	Williams	1964
<i>kintai</i> Wirth & Blanton	---; light trap; 237, 238	Wirth & Blanton	1953 b
<i>lawi</i> Ortiz	---; ---; 137, 237, 329	Wirth & Blanton	1959
<i>leoni</i> Simoes Barbosa	---; ---; 99	Simoes Barbosa	1953 +

TABLE 1 - MIDGES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CULICOIDES</i> <i>leopoldi</i> Ortiz	---; ---; 137, 204, 237, 328, 329	Wirth & Blanton	1959
	Edge of tidal ditch, short vegetation, open to sky, tidal ditch mud, no vegetation, growing, shaded, edge of tide-influenced river, vegetation one foot high, open to sky, edge of rainfall-influenced stream, vegetation one foot high, open to sky; ---; 329	Williams	1964
<i>Liohyi</i> Floch & Abonnenc	---; ---; 328	Floch & Abonnenc	1949 +
<i>Lumai</i> Barretto	---; ---; 53, 99, 137, 237, 328	Wirth & Blanton	1959
	Edge of tidal drainage ditch, short grass, open to sky, edge of forest streams which rises and falls rapidly with heavy rains, having decaying vegetation and sandy soil; ---; 329	Williams	1964
<i>Lopesi</i> Barretto	---; ---; 53	Vargas	1949
<i>Loughmani</i> Edwards	---; ---; 21	da Costa Lima	1937
<i>Loughmani</i> var. <i>jamaicensis</i> Edwards	---; ---; 21, 237	da Costa Lima	1937
	---; at light in houses; 204	Macfie	1948
	---; ---; 238	Fairchild	1943
<i>Lutealearis</i> Wirth & Blanton	---; ---; 237	Wirth & Blanton	1956
<i>Luteovenus</i> Root & Hoffman	---; prefers high altitudes; 128	Wirth	1955
	---; ---; 204, 238	Vargas	1949
	---; ---; 237	Wirth & Blanton	1956
<i>Lutai</i> Costa Lima	---; ---; 53, 129	Wirth & Blanton	1956 +
	---; on beaches; 130	Floch & Abonnenc	1942 +
<i>Lyrinotatus</i> Wirth & Blanton	---; ---; 223, 237	Wirth & Blanton	1959
<i>macrostigma</i> Wirth & Blanton	---; light trap; 237, 238	Wirth & Blanton	1953 +

TABLE 1 - MIDGES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CULICOIDES</i> <i>maculithorax</i> Williston	---; ---; 24. ---; dry bottom of ocean; 53	Lutz	1913
<i>magnipalpis</i> Wirth & Blanton	---; light trap; 237, 238	Wirth & Blanton	1953 b
<i>marshi</i> Wirth & Blanton	---; ---; 237	Wirth & Blanton	1956
<i>marum</i> Lutz	In ocean, wet sand, hidden in mud; in mangroves; 53°	Lutz	1913
	---; ---; 53	Wirth & Blanton	1956
	---; ---; 328	Vargas	1949
	Coconut swamp, brackish water, shaded, water level fluctuates, edge of partially shaded, grassy drainage ditch; ---; 329	Williams	1964
<i>metagonatus</i> Wirth & Blanton	---; ---; 223, 237	Wirth & Blanton	1959
<i>mirae</i> Ortiz	---; ---; 237, 328, 329	Wirth & Blanton	1959
<i>miyamotoi</i> Wirth & Blanton	---; light trap; 237, 238	Wirth & Blanton	1953 a
<i>mojingansie</i> Wirth & Blanton	---; light trap; 237, 238	Wirth & Blanton	1953 a
<i>nigrigenus</i> Wirth & Blanton	---; ---; 137, 223, 237	Wirth & Blanton	1959
<i>oliveri</i> Fox & Hoffman	---; ---; 20	Vargas	1949
<i>paohymerus</i> Lutz	---; bites in the afternoon; 53°	Strong et al.	1926
	---; prefers low altitudes; 128°	Wirth	1955
<i>painteri</i> Fox	---; ---; 137	Vargas	1949
<i>palpalis</i> Macfie	---; attracted to light; 204	Macfie	1948
<i>pampotilus</i> Macfie	---; attracted to light; 204	Macfie	1948
	---; ---; 237, 328	Wirth & Blanton	1959

TABLE 1 - MIDGES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CULICOIDES</i>	---		
<i>panamensis</i> (Goeldi)	---; ---; 128, 204, 237	Wirth & Blanton	1959
	---; taken at light on flowers of <i>Heliconia</i> <i>manae</i> ; 238	Wirth	1955
<i>panamericanus</i> Fox	---; ---; 204	Vargas	1949
<i>paraensis</i> (Goeldi)	---; ---; 24, 130	Simoes Barbosa	1947 +
	---; ---; 27, 51	Simoes Barbosa	1953 +
	---; appears when it rains, all year, low tide; 53°	Lutz	1913
	---; common, bites man at all hours under any weather conditions, prefers low altitude; 128°	Wirth	1955
	---; bites in the open; 237°	Dunn	1934
	---; taken at light; 238°	Woke	1954
	---; ---; 240	Vargas	1949
	---; bite man at dusk, especially abundant in rainy season; 328°	Martorell	1939
	Rotting cocoa pods; ---; 329	Williams	1964
<i>patulipalpis</i> Wirth & Blanton	---; ---; 237	Wirth & Blanton	1959
<i>paucifuscatus</i> Simoes Barbosa	---; ---; 53, 237	Wirth & Blanton	1959
	Edge of tidal ditch, short grass, open to sky, rain-soaked cow manure, edge of stream, grassy and shaded; ---; 329	Williams	1964
<i>phaenotus</i> Wirth & Blanton	---; ---; 237	Wirth & Blanton	1959
<i>phlebotomus</i> (Williston)	---; abundant on beaches in houses, rarely bite man; 22°	Wolcott	1936
	---; light trap; 22, 237. ---; ---; 53, 137, 204, 223°, 328°	Wirth & Blanton	1953
	---; ---; 99, 130, 223, 328, 329	Wirth & Blanton	1959

TABLE 1 - MIDGES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CULICOIDES</i>			
<i>phlebotomus</i> (Williston) (cont.)	Wet depressions of sandy beach; enters houses; 137°	Painter	1927
	---; taken at light; 238°	Woke	1954
	Near mouths of fresh-water rivers and streams which flood over sandy areas with each high- tide, no vegetation, open to sun, sandy banks of tide-influenced drainage ditches, open to sun, in sandy bottoms of streams near mouths, open to sun, at edges of sandy depression of water affected by tides behind sandy beach, open to sun, edge of partially shaded, grassy stream whose water level fluctuates with rainfall; ---; 329	Williams	1964
	---; ---; 346	Fox	1946
<i>piotipennis</i> (Philippi)	---; ---; 75	Macfie	1948
<i>pifanoi</i> Ortiz	---; ---; 137, 223, 237, 328	Wirth & Blanton	1959
	Vegetated and shaded banks of fresh-water streams which rise and fall with heavy rains, vegetated shady areas where overflow waters from ground pools flow into streams; ---; 329	Williams	1964
<i>piliferus</i> Root & Hoffman	---; Aug.; 204	Vargas	1945
<i>pilosus</i> Wirth & Blanton	---; ---; 237	Wirth & Blanton	1959
<i>poikilonotus</i> Macfie	---; prefers low altitudes, taken at light; 128	Wirth	1955
	---; ---; 137, 223, 237	Wirth & Blanton	1959
	---; at lamp at night; 204	Macfie	1948
	Rotting cocoa pods, decaying banana stumps, stalks, and bracts, rotting stump of Sucre fig, bamboo stumps; ---; 329	Williams	1964
<i>polystictus</i> Kieffer	---; ---; 239	Kieffer	1917
<i>pumpingius</i> Macfie	---; at lamp at night on a veranda; 204	Macfie	1946

TABLE 1 - MIDGES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CULICOIDES</i>	---	Wirth	1955
<i>propreripennis</i>	---	Macfie	1948
Macfie	---	Wirth & Blanton	1959
	---	Wirth & Blanton	1959
<i>pseudodiabolicus</i>	---	Fox	19
Fox	---	Fox	19
<i>pulchripennis</i>	---	Vargas	1949
Macfie	---	Vargas	1949
<i>pulicans</i>	---	Stephens	1923
(Linnaeus)	---	Stephens	1923
<i>pusilloides</i>	---	Wirth & Blanton	1959
Wirth & Blanton	---	Wirth & Blanton	1959
	---	Wirth & Blanton	1959
<i>pusillus</i>	---	Simoes Barbosa	1947 +
Lutz	---	Simoes Barbosa	1947 +
	---	Fox & Kohler	1950 +
	---	Fox & Kohler	1950 +
	---	Lutz	1913
	---	Lutz	1913
	---	Wirth & Blanton	1959
	---	Wirth & Blanton	1959
	---	Vargas	1949
	---	Vargas	1949
	---	Wirth	1955
	---	Wirth	1955
	---	Macfie	1948
	---	Macfie	1948
	Rotting cocoa pods, decaying banana stumps, stalks and bracts, rotting plantain stalk, rotting Sucre fig stump, discarded horse bedding of macerated coconut fibers wet with rain, rain-soaked horse manure, rain-soaked cow manure, grassy spring outcrop on hillside, open to sky, rotting calabash, shaded, grassy edge of drainage stream in cocoa plantation, decaying flowers of <i>Heliconia elongata</i> , bamboo stumps, decaying whole coconut from which the milk had been drained; ---; 329	Williams	1964
<i>rangeli</i>	---	Wirth & Blanton	1959
Ortiz & Mirsa	---	Wirth & Blanton	1959
<i>recifei</i>	---	Simoes Barbosa	1943
Simoes Barbosa	---	Simoes Barbosa	1943
	---	Vargas	1949
	---	Vargas	1949

TABLE 1 - MIDGES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CULICOIDES</i> <i>reticulatus</i> Lutz	Crab holes on edge of mangrove swamp of more or less fresh water; ---; 52° ---; ---; 237	Lutz Wirth & Blanton	1913 1959
<i>riethi</i> Kieffer	---; ---; 29	Gutzevich	1960
<i>rostratus</i> Wirth & Blanton	---; ---; 237	Wirth & Blanton	1956
<i>roseboomi</i> Simoes Barbosa	---; ---; 237, 240, 329 ---; taken at light; 238	Vargas Woke	1949 1954
<i>ruizi</i> Forattini	---; ---; 53	Wirth & Blanton	1956 a
<i>sanctae-martae</i> Kieffer	---; ---; 82	Kieffer	1917
<i>scopus</i> Root & Hoffman	---; Aug.-Sept., March; 204 ---; ---; 237	Vargas Wirth & Blanton	1945 1959
<i>stellifer</i> Coquillett	---; ---; 204 ---; ---; 328, 329 ---; ---; 329°	Simoes Barbosa Vargas Adamson	1947 + 1949 1939
<i>stigmatis</i> Wirth	---; bites man 4:30-6:00 p.m., under partly overcast skies during warmer weather, prefers low altitudes; 128° ---; attracted by light, Sept.; 128. ---; attracted by light, Aug.; 204. ---; Aug.-Sept.; 238	Wirth Vargas	1955 1953
<i>stubaensis</i> Fox	---; active at night, July; 329	Fox	1946
<i>tenuilobus</i> Wirth & Blanton	---; ---; 237	Wirth & Blanton	1959
<i>tetrathyris</i> Wirth & Blanton	---; ---; 137, 237 Rotting cocoa pods; ---; 329	Wirth & Blanton Williams	1959 1964
<i>transferrans</i> Ortiz	---; ---; 99, 237, 328	Wirth & Blanton	1959
<i>tricoloratus</i> Wirth & Blanton	---; light trap; 237, 238	Wirth & Blanton	1953 a

TABLE 1 - MIDGES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CULICOIDES</i>	---		
<i>trilineatus</i> Fox	---; tree holes; 22	Fox & Kohler	1950 +
	---; Sept.; 23°	Fox	1946
<i>trinidadensis</i> Hoffmann	---; ---; 17, 20, 223, 237	Wirth & Blanton	1956 a
	---; light trap; 329	Fox	1946
	---; ---; 329°	Myers	1934
<i>tristriatulus</i> Hoffman	---; ---; 204	Vargas	1949
<i>undecimpunctatus</i> Kieffer	---; ---; 27	Kieffer	1917
<i>unradialis</i> Wirth & Blanton	---; light trap; 237, 238	Wirth & Blanton	1953 b
<i>vargasi</i> Wirth & Blanton	---; light trap; 237, 238	Wirth & Blanton	1953 b
<i>variipennis</i> Coquillett	---; Jan.-July, Oct.; 204	Vargas	1945
	---; ---; 328	Ortiz & Mirra	1950
<i>venezuelensis</i> Ortiz & Mirra	---; ---; 75, 237, 328, 329	Wirth & Blanton	1959
<i>verecundus</i> Macfie	---; ---; 99, 137, 204, 223, 237	Wirth & Blanton	1959
<i>villosipes</i> Kieffer	---; ---; 239	da Costa Lima	1937
<i>volcanensis</i> Wirth & Blanton	---; ---; 237	Wirth & Blanton	1959
<i>willistoni</i> Wirth & Blanton	---; light trap; 237	Wirth & Blanton	1953
<i>wirthomyia</i> Vargas	---; attracted by light, March; 204	Vargas	1953
<i>wokei</i> Simoes Barbosa	---; ---; 22	Vargas	1949
	---; ---; 128, 204, 223	Simoes Barbosa	1947 +
	---; ---; 237	Wirth & Blanton	1959
	---; caught at lights; 238	Fox	1947

TABLE 1 - MIDGES (conclusion)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CULICOIDES</i> <i>xanthogaster</i> Kieffer	---; ---; 130	Vargas	1949
<i>yukoniensis</i> Hoffmann	---; June-July, March; 204	Vargas	1945
<i>yarens</i> (Poey)	---; ---; 99	Simoes Barbosa	1953 +
<i>HOLOCONOPS</i> <i>non-larvensis</i> Hoffman	---; ---; 329°	Adamsen	1939
<i>JOHANNSENIELLA</i> <i>fluviatilis</i> Lutz	---; ---; 53°	Lutz	1914
<i>LEPTOCONOPS</i> <i>bequaerti</i> (Kieffer)	---; ---; 223°	Woke	1954
<i>braziliensis</i> Lutz	---; ---; 53°	Carter	1921
<i>TERESTHES</i> <i>braziliensis</i> Lutz	---; ---; 53°	Lutz	1913

TABLE 2 - SUMMARY OF DISEASES OR DISEASE ORGANISMS TRANSMITTED BY
MIDGES

SPECIES	DISEASE ORGANISM					DISTRIBUTION
	VIRUS &					
	RICKETTSIA	PROTOZOA	HELMINTHS	OTHER		
<i>CULICOIDES</i> <i>furans</i> (Poey)			<i>Mansonella</i> <i>ossardi</i>			346

LITERATURE CITED

- Adanson, A. M.
1939. Observations on biting sandflies (Ceratopogonidae) in Trinidad, British West Indies. Trop. Agriculture, Trin. 16(4):79-81.
- Briceno-Iragorry, L.
1949. Breve Nota sobre *Culicoides*. Bol. Lab. Clin. Basetti. 15(29-30):318-319.
- Carter, H. F.
1921. A revision of the genus *Leptoconops*, Skuse. Bull. ent. Res. 12(1):1-28.
- da Costa Lima, A.
1937. Chave das especies de *Culicoides* da região, neotropica (Diptera: Ceratopogonidae). Mem. Inst. Osw. Cruz. 32(3):411-422.
- Dampf, A.
1936. Los Ceratopogónidos o jejenes (Insecta, Diptera, Fam. Ceratopogonidae) como transmisores de Filarias. Medicina, Méx. no. 268. 3 p.
- Dunn, L. H.
1934. Entomological investigations in the Chiriqui Region of Panama. Psyche, Camb., Mass. 41(3):166-183.
- Fairchild, G. B.
1943. An annotated list of the bloodsucking insects, ticks and mites known from Panama. Amer. J. trop. Med. 23(6):569-591.
- Floch, H. & E. Abonnenc
1942. Cératopogonidés hématophages de la Guyane française. Publ. Inst. Pasteur Guyane. no. 37. 10 p., no. 49. 5 p.
- & ———
1949. Sur les Ceratopogonides du Venezuela. Description de deux especes nouvelles: *Culicoides lichyi* et *Lasiohelea darsisi*. Publ. Inst. Pasteur Guyane. no. 196. 6 p.
- & ———
1950. Les Culicoides de la Guadeloupe. Description de *Culicoides guadeloupensis* n. sp. Publ. Inst. Pasteur Guyane. no. 203. 5 p.
- Fox, I.
1946. A review of the species of biting midges or *Culicoides* from the Caribbean Region (Diptera: Ceratopogonidae). Ann. ent. Soc. Amer. 39(2):248-258.
- 1947. Two new Central American biting midges or culicoides (Diptera: Ceratopogonidae). Rev. Kuba Med. trop. 3(4):90-91.
- & C. E. Kohler
1950. Distribution and relative abundance of the species of biting midges or *Culicoides* in Eastern Puerto Rico, as shown by light traps. Puerto Rico J. Publ. Hlth. 25(3):342-349.
- Gutsevich, A. V.
1960. Blood-sucking ceratopogonids (*Culicoides* and *Leptoconops* spp. Diptera, Heleidae) of the fauna of the U.S.S.R. Oprod. Fauna SSSR. no. 72. 131 p.
- Kieffer, J. J.
1917. Chironomides d'Amérique conservés au Musée National Hongrois de Budapest. Annis hist.-nat. Mus. natn. hung. 15:292-364.

- Kieffer, J. J.
1925. Nouveaux genres et nouvelles espèces de Chironomides piqueurs. Arch. Inst. Pasteur Algér. 3(4):405-430.
- Kohler, C. E. & I. Fox
1951. The relative attractiveness of New Jersey light traps painted (a) green and (b) yellow to Puerto Rican *Culicoides*. J. econ. Ent. 44(1):112-113.
- Lutz, A.
1913. Contribuição para o estudo das Ceratopogoninas hematofagas do Brasil. Mem. Inst. Osw. Cruz. 5(1):45-73.
———
1914. Contribuição para o conhecimento das Ceratopogoninas do Brasil. Terceira memória. Aditamento terceiro e descrição de espécies que não sugam sangue. Mem. Inst. Osw. Cruz. 6(2):81-99.
———, H. C. De Souza Araujo & O. Da Fonseca
1918. Viagem científica no Rio Paraná e a Assuncion com Volta por Buenos Aires, Montevideo e Rio Grande. Mem. Inst. Osw. Cruz. 10(2):104-173.
- Macfie, J. W. S.
1935. Ceratopogonidae (Dipt.) from the River Amazon. Stylops. 4:49-56.
———
1948. Some species of *Culicoides* (Diptera, Ceratopogonidae) from the State of Chiapas, Mexico. Ann. trop. Med. Parasit. 42(1):67-87.
- Martorell, L. F.
1939. Insects observed in the State of Aragua, Venezuela, South America. J. Agric. Univ. P. R. 23(4):177-232.
- Myers, J. G.
1933. Report on the sand-fly (*Culicoides*) investigations in the Bahamas. Typescript. 18 p.
———
1934. The sand-fly pest (*Culicoides*). Trop. Agriculture, Trin. 12(3):71-73. (Abstract used).
- Neiva, A. & B. Penna
1916. Viagem científica pelo Norte da Bahia, Sudoeste de Pernambuco, Sul do Piauí e de Norte a Sul de Goiás. Mem. Inst. Osw. Cruz. 8(3):74-224.
- Nelson, G. S. & F. R. N. Pester
1962. The identification of infective filarial larvae in Simuliidae. Bull. World Hlth Org. 27(4-5):473-481.
- Ortiz, I. & M. Mirsa
1950. Estudios en *Culicoides* (Diptera, Ceratopogonidae). VIII. Sobre una nueva especie del Grupo *hematopodus*: *Culicoides venezuelensis* n. sp. Arch. venez. Pat. trop. 2(1):137-144.
- Painter, R. H.
1927. The biology, immature stages, and control of the sandflies (biting Ceratopogoninae) at Puerto Castilla, Honduras. Rep. med. Dep. un. Fruit Co. pp. 245-262.
- Root, F. M.
1922. Notes on mosquitoes and other blood-sucking flies from Porto Rico. Amer. J. Hyg. 19(10):828.

- Root, F. M. & W. A. Hoffman
1937. The North American species of *Culicoides*. Amer. J. Hyg. 25(1):150-176.
- Simões Barbosa, F. A.
1943. Descrição de *Culicoides rerifonsis* n. sp. e do macho de *Culicoides reticulatus* Lutz (Diptera, Chironomidae). Rev. brasíl. Biol. 3(2):261-264.
- 1947. *Culicoides* (Diptera: Heleidae) da região neotrópica. Anais Soc. Biol. Pernamb. 7(1):3-30.
- 1953. Novos subsídios para o conhecimento dos *Culicoides* neotropicos (Diptera: Heleidae). Publicões avuls. Inst. Aggeu Magalhães. 2(3):11-42.
- Stephens, E. A.
1923. Some observations on a Pappataci-like fever occurring in Cuba. Bull. U. S. Army med. Dep. 18(3):368-370.
- Strong, R. P., G. C. Shattuck, J. C. Bequaert & R. E. Wheeler
1926. Medical report of the Hamilton Rice Seventh Expedition to the Amazon in conjunction with the Department of Tropical Medicine of Harvard University, 1924-1925. Contr. Harv. Inst. trop. Biol. Med. no. 4. 313 p.
- Trapias, H.
1947. DDT residual spray control of sandflies in Panama. J. econ. Ent. 40(4):472-475.
- van Volkenberg, H. L.
1935. Parasites and parasitic diseases of horses in Puerto Rico. Bull. P. R. fed. agric. Exp. Sta. no. 37. 19 p.
- Vargas, L.
1945. Nota sobre Ceratopogónidos y *Culicoides*. Rev. Inst. Salubr. Enferm. trop., Méx. 6(1):41-43.
- 1949. Lista de los *Culicoides* del Mundo (Diptera, Heleidae). Rev. Soc. mex. Hist. nat. 10(1-4):191-218.
- 1953. *Culicoides wirthomyia* n. sp. y *Culicoides stigmalis* Wirth, 1952. Rev. Inst. Salubr. Enferm. trop., Méx. 13(3):227-231.
- Williams, R. W.
1964. Observations on habitats of *Culicoides* larvae in Trinidad, W. I. (Diptera: Ceratopogonidae). Ann. ent. Soc. Amer. 57(4):462-466.
- Wirth, W. W.
1955. Report on a collection of biting midges of the genus *Culicoides* from Guatemala (Diptera, Heleidae). Proc. ent. Soc. Wash. 57(3):109-117.
- 1960. The correct status of *Cetocripus garidei* Prethes, a South American biting midge (Diptera: Ceratopogoniidae). Proc. ent. Soc. Wash. 52(1):44.
- & F. S. Blanton
1953. Studies in Panama *Culicoides* (Diptera, Heleidae). III. A New Species related to *phlebotomus* (Williston). Ent. News. 64(5):113-120.
- & ———
1953a. Studies in Panama *Culicoides* (Diptera, Heleidae). II. Descriptions of six additional new species. J. Parasit. 39(3):229-236.

Wirth, W. W. & F. S. Blanton

- 1953b. Studies in Panama *Culicoides* (Diptera: Heleidae). I. Description of six new species. J. Wash. Acad. Sci. 43(3):69-77.

_____. 6 _____.
1955. Studies in Panama *Culicoides* (Diptera, Heleidae). IV. Description of three new species. Bull. Brooklyn ent. Soc. 50(4):100-106.

_____. 6 _____.
1955a. Studies in Panama *Culicoides* (Diptera, Heleidae). V. Descriptions of three new species of the subgenus *Oecacta* Poey. Bull. Brooklyn ent. Soc. 50(5):121-127.

_____. 6 _____.
1956. Studies in Panama *Culicoides*. VII. The species of the *Pulicaris* and *Cova-Garciai* Groups. Proc. ent. Soc. Wash. 58(4):211-227.

_____. 6 _____.
1956a. Studies in Panama *Culicoides*. VIII. The neotropical species of the *guttatus* group of the subgenus *Hoffmania*. Proc. ent. Soc. Wash. 58(6):305-326.

_____. 6 _____.
1959. Biting midges of the genus *Culicoides* from Panama (Diptera: Heleidae). Proc. U. S. nat. Mus. 109:237-482.

_____. & R. W. Williams
1957. The biting midges of the Bermuda Islands with descriptions of five new species (Diptera, Heleidae). Proc. ent. Soc. Wash. 59(1):5-14.

Woke, P. A.

1947. Arthropods of sanitary importance in the republic of Nicaragua, Central America. Amer. J. trop. Med. 27(3):357-375.

_____.
1954. Observations on Central American biting midges (Diptera, Heleidae). Ann. ent. Soc. Amer. 47(1):61-74.

Wolcott, G. N.

1936. "Insectae Borinquenses." A revised annotated check list of the insects of Puerto Rico with a Host-plant index by J. I. Otero. J. Agric. Univ. P. R. 20(1):1-627.

E. HORSE FLIES

The entries for horse flies (Tabanidae) include very little biology. Most of the literature on this large and important group is concerned with taxonomy, a lesser amount on distribution and none on disease transmission to man.

The synonymy, both at the genus and species level, is very complex. Several specialists are currently striving to straighten out some of these problems.

In the tables are listed 1115 species or subspecies, but it is certain that many of these are not valid names.

TABLE 1 - HORSE FLIES

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>ACANTHOCEPHA</i> <i>anocantha</i> Lutz & Nelva	---; banks of river, active at dusk; 53°	Lutz	1915
<i>coarctata</i> (Wiedemann)	---; at an altitude up to 1,200 meters; 53	Lutz	1915
<i>cristalis</i> Lutz	---; ---; 53	Lutz	1915
<i>castrata</i> (Wiedemann)	---; ---; 53, 325	Kröber	1934
<i>formosa</i> Kröber	---; ---; 53	Kröber	1934
<i>intermedia</i> Lutz	---; ---; 53	Lutz	1915
<i>longicornis</i> Fabricius	---; ---; 53	Kröber	1934
<i>marginalis</i> Walker	---; ---; 53, 130	Kröber	1934
	---; ---; 329, 352	Bequaert	1940
<i>nigricornis</i> Lutz	---; ---; 53	Kröber	1934
<i>quinquevincta</i> Lutz	---; ---; 53	Lutz	1915
<i>renuicornis</i> Lutz	---; ---; 53	Kröber	1934
<i>trigonifera</i> Schiner	---; ---; 328	Kröber	1934
<i>ACANTHOCERELLA</i> <i>bolivensis</i> Brethes	---; ---; 51	Kröber	1934
<i>gamma</i> Krober	---; ---; 239	Kröber	193
<i>scutellata</i> Williston	---; ---; 53	Kröber	1934
<i>AEGLALOMIA</i> <i>atlantica</i> (Johnson)	---; ---; 48	Philip	1947
<i>AGELANIUS</i> <i>senilis</i> Phillipi	---; ---; 75	Gigoux	1935
<i>ALLICMMA</i> <i>breuthmanni</i> Enderlein	---; ---; 82	Kröber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	SPAWNING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>ALLIOMMA</i> <i>interrupta</i> Enderlein	---; ---; 82	Kröber	1934
<i>thiemeana</i> Enderlein	---; ---; 82	Kröber	1934
<i>AMPHICHLOROPS</i> <i>angustifrons</i> Kröber	---; ---; 53	Kröber	1934
<i>flava</i> Wiedemann	---; ---; 54, 239, 325	Kröber	1934
<i>planiventris</i> Wiedemann	---; ---; 27, 53, 130	Kröber	1934
	---; ---; 328	Pechuman	1942
<i>quadrinaculata</i> Macquart	---; ---; 53, 82, 328	Kröber	1932
<i>unicolor</i> Wiedemann	---; ---; 53, 82, 240	Kröber	1932
	---; ---; 328	Pechuman	1942
<i>venenata</i> Osten Sacken	---; ---; 51, 85, 128, 237	Kröber	1932
	---; ---; 53, 69, 99, 328	Kröber	1934
<i>viridiventris</i> Macquart	---; ---; 53	Kröber	1934
<i>ASSIPALA</i> <i>melanoptera</i> (Hine)	---; ---; 137	James	1950
<i>ASTIGMA OPHTHALMUS</i> <i>satanas</i> Kröber	---; ---; 85, 237	Kröber	1931 c
<i>BELLARDIA</i> <i>oculuc</i> Walker	---; ---; 128, 204, 223	Kröber	1932 a
	---; ---; 328	Pechuman	1942
<i>rubrofemorata</i> Kröber	---; ---; 53	Kröber	1934
<i>subrubra</i> Bellardi	---; ---; 99, 128, 204	Kröber	1934
<i>BOLBODIMYIA</i> <i>bicolor</i> Bigot	---; ---; 129°	Cleare	1919
	---; ---; 130	Kröber	1934
	---; Sept.; 328	Stone	1944
<i>desecta</i> Enderlein	---; ---; 51, 130	Kröber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>BOLBODIMYIA</i>			
<i>erythrocephala</i> Bigot	---; ---; 237	Kröber	1934
<i>lateralis</i> Kröber	---; ---; 27	Kröber	1934
<i>nigra</i> Stone	---; ---; 99	Kröber	1934
<i>BOMBYLONYIA</i>			
<i>erythronotata</i> Bigot	---; ---; 53	Lutz & Meiva	1914
<i>leonina</i> Lutz	---; ---; 53	Lutz & Meiva	1914
<i>nitens</i> Bigot	---; ---; 53	Lutz & Meiva	1914
<i>CAENOPANGONIA</i>			
<i>hirtipalpis</i> Bigot	---; ---; 75	Kröber	1934
<i>CALLIOSCA</i>			
<i>varia</i> Walker	---; ---; 75	Kröber	1934
<i>CATACHLOROPS</i>			
<i>capreoleus</i> Wiedemann	---; ---; 53, 328	Kröber	1934
<i>circumfusa</i> Wiedemann	---; ---; 204	Kröber	1934
<i>ecuadoriensis</i> Enderlein	---; ---; 99	Kröber	1934
<i>fervens</i> Linnaeus	---; ---; 53	Kröber	1934
<i>fumipennis</i> Kröber	---; ---; 53	Kröber	1934
<i>fuscipennis</i> Macquart	---; ---; 27, 53	Kröber	1934
<i>halterata</i> Kröber	---; ---; 129	Kröber	1934
<i>immaculata</i> Macquart	---; ---; 53	Kröber	1934
<i>interseus</i> Walker	---; ---; 53	Kröber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CATACHLOROPS</i>			
<i>luotuoosa</i>	---; ---; 129	Kröber	1934
Macquart			
<i>maculipennis</i>	---; ---; 53	Kröber	1934
Macquart			
<i>melanosoma</i>	---; ---; 85	Kröber	1934
Hine			
<i>nebulosa</i>	---; ---; 352	Kröber	1934
Kröber			
<i>nigripalpis</i>	---; ---; 82, 99	Kröber	1934
Macquart			
<i>nigripennis</i>	---; ---; 53	Kröber	1934
Kröber			
<i>piotipennis</i>	---; ---; 27	Kröber	1934
Kröber			
<i>potator</i>	---; ---; 53, 328	Kröber	1934
Wiedemann			
<i>prasterensis</i>	---; ---; 53	Kröber	1934
Walker			
<i>psoloptera</i>	---; ---; 53, 325	Kröber	1934
Wiedemann			
<i>rufescens</i>	---; ---; 53	Kröber	1934
Fabricius			
<i>rufithorax</i>	---; ---; 53	Kröber	1934
Walker			
<i>scutellata</i>	---; ---; 129	Kröber	1934
Kröber			
<i>therioplentiformis</i>	---; ---; 53	Kröber	1934
Kröber			
<i>transposita</i>	---; ---; 82	Kröber	1934
Walker	---; ---; 237	Fairchild	1943
<i>CHAETOPALPUS</i>			
<i>annulicornis</i>	---; ---; 75	Kröber	1934
Phillipi			
<i>bisulcatus</i>	---; ---; 75	Kröber	1934
Enderlein			

TABLE 1 -- HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CHAETOPALPUS</i>			
<i>coracinus</i> Phillipi	---; ---; 75	Kröber	1934
<i>mendonanus</i> Enderlein	---; ---; 27	Kröber	1934
<i>CHELOMIA</i>			
<i>bigoti</i> Bellardi	---; ---; 82, 204, 223, 328	Kröber	1934
<i>bigoti</i> var. <i>fulvohirna</i> Kröber	---; ---; 128	Kröber	1934
<i>cineraria</i> Wiedemann	---; ---; 53	Kröber	1934
	---; ---; 328	Pechuman	1942
<i>cinnamomea</i> Schiner	---; ---; 82, 240, 352	Kröber	1934
<i>ilicifera</i> Walker	---; ---; 53, 297, 329	Kröber	1934
	---; ---; 328	Pechuman	1942
<i>peruviana</i> Macquart	---; ---; 53, 82, 240, 328	Kröber	1934
<i>satanica</i> Bigot	---; ---; 53	Kröber	1934
<i>CHELOTABANUS</i>			
<i>albibartis</i> Wiedemann	---; ---; 129, 297	Kröber	1934
<i>aurora</i> Macquart	---; ---; 53	Lutz & Meiva	1914
<i>cinerarius</i> Wiedemann	---; ---; 53	Lutz & Meiva	1914
<i>disca</i> Wiedemann	---; ---; 53, 297	Kröber	1932 a
<i>fallax</i> Macquart	---; ---; 130	Kröber	1934
<i>ferreus</i> Walker	---; ---; 53	Kröber	1934
<i>fuscus</i> Wiedemann	---; ---; 53	Kröber	1934
<i>impressus</i> Wiedemann	---; ---; 53, 204, 347	Kröber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY, DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CHLOROTABANUS</i>	---; ---; 53, 204, 239	Kröber	1929 b
<i>inavis</i> (Fabricius)	---; ---; 82	Patino- Camargo	1940
	---; nocturnal; 129	Haddow & Corbet	1960
	---; ---; 237	Fairchild	1943
<i>meriogonus</i> (Linnaeus)	---; ---; 53	Lutz et al.	1918
	---; ---; 204	Kröber	1931
	---; ---; 237	Fairchild	1943
	---; ---; 328	Stone	1944
<i>CHRYSOPS</i>			
<i>affinis</i> Bellardi	---; ---; 204	Kröber	1934
<i>alleni</i> Fairchild	---; ---; 237	Fairchild	1943
<i>altivaga</i> Osten Sacken	---; ---; 204	Kröber	1934
<i>apicalis</i> Bellardi	---; ---; 204	Kröber	1934
<i>aurofasciata</i> (Kröber)	---; ---; 53, 129	Strong et al.	1926
<i>auroguttata</i> Kröber	---; ---; 82, 329	Kröber	1934
	---; ---; 352	Bequaert	1940
<i>auroguttata</i> var. <i>pallidifemorata</i> Kröber	---; ---; 329	Kröber	1934
<i>berta</i> Pechuman	---; ---; 53	Pechuman	1940
<i>bivittata</i> Lutz	---; ---; 325	Kröber	1934
<i>boliviensis</i> Kröber	---; ---; 51	Kröber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CHRYSOPS</i>			
<i>brasiliensis</i> Ricardo	---; ---; 53	Kröber	1934
<i>brevifascia</i> Lutz	---; ---; 27, 51	Kröber	1934
<i>brevifasciatus</i> Lutz	---; ---; 27, 51	Kröber	1929 a
<i>bulbicornis</i> Lutz	---; ---; 53	Kröber	1934
	---; ---; 240	Pechuman	1937
	---; ---; 329, 352	Bequaert	1940
<i>calogaster</i> Schiner	---; ---; 53	Kröber	1934
	---; ---; 237	Dunn	1934
	---; ---; 328	Stone	1944
<i>calogaster</i> var. <i>mexicana</i> Kröber	---; ---; 204	Kröber	1934
<i>caloptera</i> Hine	---; ---; 128	Kröber	1934
<i>chiriquensis</i> Fairchild	---; ---; 237	Fairchild	1943
<i>costata</i> Fabricius	---; bites man on head at all times of the day, November-March; 18°	Hoffmann	1921
	---; in and around edges of mangrove swamps, bites man readily by day; 22°	Root	1922
	---; ---; 53	Lutz & Neiva	1914
	---; ---; 82	Patino- Camargo	1940
	---; ---; 128, 137 (Rarely bites man)	Bequaert	1925
	---; rare; 129°	Cleare	1919
	---; ---; 328°	Martorell	1939
<i>cruciata</i> Wiedemann	---; ---; 18, 53, 99, 239	Kröber	1934
	---; ---; 240	Pechuman	1937

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CHRYSOPS</i>	---; ---; 99, 347	Kröber	1934
<i>oruciana</i>			
var. <i>ecuadorensis</i>	---; ---; 240	Pechuman	1937
Lutz			
<i>orucia</i> 3			
var. <i>fusciapex</i>	---; ---; 53	Kröber	1934
Lutz			
<i>oruciana</i>			
var. <i>lutsi</i>	---; ---; 53, 240	Kröber	1934
Kröber			
<i>oruciana</i>			
var. <i>peruviana</i>	---; ---; 51, 53, 240	Kröber	1934
Kröber			
<i>ourani</i>	---; ---; 53	Kröber	1934
Kröber			
<i>deceptus</i>	---; ---; 53	Kröber	1934
Kröber			
<i>ecuadorensis</i>	---; ---; 240	Pechuman	1937
Wiedemann			
<i>engeli</i>	---; ---; 204	Kröber	1934
Kröber			
<i>facialis</i>	---; ---; 204	Kröber	1934
Townsend			
<i>flavida</i>	---; ---; 17, 69, 352	Kröber	1934
Wiedemann			
	---; ---; 18, 346*	Bequaert	1940
	---; ---; 204	Philip	1947
<i>flavoscutellata</i>	---; ---; 51, 239	Kröber	1934
Kröber			
<i>formosa</i>	---; ---; 53	Kröber	1934
Kröber			
	---; Dec.; 328	Stone	1944
<i>fraseri</i>	---; ---; 91	Kröber	1934
Williston			
<i>frontalis</i>	---; ---; 19, 20	Bequaert	1940
Macquart			
	---; ---; 53, 51	Kröber	1934
<i>fulvipes</i>	---; ---; 51, 53	Kröber	1934
Walker			
	---; in forest areas; 129	Cleare	1919
	---; ---; 240	Pechuman	1937
	---; ---; 329, 352	Bequaert	1940

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CHRYSOPE</i> <i>fasciata</i> Lutz	---; ---; 53	Lutz & Meiva	1914
<i>gigantea</i> Kröber	---; ---; 204	Kröber	1934
<i>gracilis</i> Kröber	---; ---; 239	Kröber	1934
<i>quiterasi</i> Brunetti	---; ---; 18	Kröber	1934
<i>guttipennis</i> Kröber	---; ---; 53	Kröber	1934
<i>gutulla</i> (Wiedemann)	---; ---; 53	Strong et al.	1926
<i>hellieri</i> Kröber	---; ---; 53, 239, 325	Kröber	1934
<i>incisa</i> Macquart	---; ---; 51, 53, 85, 204	Kröber	1934
	---; in forest; 223	Woke	1947
	---; ---; 237	Fairchild	1943
	---; Sept.; 238	Stone	1944
<i>intrudens</i> Williston	---; ---; 53	Kröber	1934
<i>laeta</i> Fabricius	---; ---; 51, 53, 82, 85, 99, 130, 239, 240, 325, 328	Kröber	1929 b
	---; ---; 75	Kröber	1934
<i>laeta</i> <i>laeta</i> Fabricius	---; Sept. and Dec.; 328	Stone	1944
<i>laeta</i> var. <i>nigrovittata</i> Kröber	---; ---; 53	Pechuman	1937
<i>laeta</i> var. <i>senilis</i> Kröber	---; ---; 328	Stone	1944
<i>laeta</i> var. <i>variana</i> Wiedemann	---; ---; 53, 130, 325	Kröber	1934
<i>latifasciatus</i> Bellardi	---; ---; 137	Bequaert	1940

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CHRYSOPE</i>			
<i>latitibialis</i> Kröber	---; ---; 129	Kröber	1934
<i>leucocephalus</i> Wiedemann	---; ---; 53, 85, 239	Kröber	1934
	---; ---; 82	Patino- Camargo	1940
	---; ---; 328	Pechuman	1942
<i>lynchii</i> Brütnes	---; ---; 27, 53, 239	Kröber	1934
<i>malasna</i> Hine	---; in swampy jungle; 223	Woke	1947
	---; ---; 237	Fairchild	1943
<i>megacera</i> Bellardi	---; ---; 204	Kröber	1934
<i>melanoptera</i> Hine	---; ---; 128	Kröber	1934
<i>merioana</i> Kröber	---; in forest; 223	Woke	1947
	---; ---; 237	Fairchild	1943
<i>moesta</i> Wiedemann	---; ---; 53	Kröber	1934
<i>moesta</i> var. <i>flavipennis</i> Kröber	---; ---; 99	Kröber	1934
<i>neobrasiliensis</i> Kröber	---; ---; 53	Kröber	1934
<i>nigricornis</i> Lutz	---; ---; 27, 53	Kröber	1934
	---; ---; 239	Lutz et al.	1918
<i>nigrovittata</i> Kröber	---; ---; 53	Kröber	1934
<i>olivacea</i> Kröber	---; ---; 53, 297	Kröber	1934
<i>ovata</i> Lutz	---; ---; 53	Kröber	1934
<i>pachycera</i> Williston	---; ---; 204	Brennan	1935
<i>pachymeria</i> Hine	---; ---; 128	Kröber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CHRYSOPS</i>	---; ---; 51	Kröber	1929 a
<i>paraguayensis</i> Kröber	---; ---; 239	Kröber	1934
<i>parvifascia</i> Lutz	---; in dry regions; 53 ^o	Neiva & Penna	1916
	---; ---; 53	Kröber	1934
	---; ---; 239	Lutz et al.	1918
<i>scalarata</i> Bellardi	---; ---; 69, 204	Kröber	1934
	---; ---; 137	Bequaert	1940
<i>soror</i> Kröber	---; ---; 237	Fairchild	1943
	---; ---; 328	Kröber	1934
<i>striata</i> Osten Sacken	---; ---; 69, 352	Kröber	1934
	---; ---; 204	Philip	1947
<i>subcaescutiens</i> Bellardi	---; ---; 204	Kröber	1934
<i>tanyceras</i> Osten Sacken	---; ---; 85	Kröber	1934
<i>tenuifasciata</i> Kröber	---; ---; 240	Kröber	1934
<i>trifaria</i> Macquart	---; ---; 75, 239	Kröber	1934
<i>trispinosa</i> Kröber	---; ---; 325	Kröber	1934
<i>tristis</i> Fabricius	---; ---; 51, 53, 297, 347	Kröber	1934
	---; common on coast lands, occasionally in forest; 129 ^o	Cleare	1919
	---; ---; 328	Pechuman	1942
	---; ---; 329, 352	Bequaert	1940
<i>uruguayensis</i> Lutz	---; ---; 325	Kröber	1934
<i>variegata</i> (De Geer)	---; July; 20, 27, 53, 297	Strong et al.	1925
	---; coconut grove by ocean, citrus grove, 22	Wolcott	1941
	---; ---; 82	Patino- Camargo	1940

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CHRYSOPS</i>	---; Feb.; 204	Bequaert	1931
<i>variegata</i> (De Geer) (cont.)	---; in swampy jungle; 223	Wohlschlag	1947
	---; ---; 237	Fairchild	1943
	---; ---; 439	Kröber	1934
	---; Sept.-October, Dec.; 328	Stone	1944
	---; ---; 329, 346*, 352	Bequaert	1940
<i>variegata</i> <i>var. peruviana</i> Kröber	---; ---; 240	Kröber	1934
<i>variegata</i> <i>var. subfascipennis</i> Macquart	---; ---; 22, 75, 82, 85, 128	Kröber	1934
<i>variegata</i> <i>var. venezuelensis</i> Kröber	---; ---; 297, 328	Kröber	1934
<i>virgulata</i> Bellardi	---; ---; 204	Kröber	1934
<i>willistoni</i> Wied.	---; ---; 128	Kröber	1934
	On damp but not flooded ground; ---; 328*	Clason	1943
<i>COENURA</i>			
<i>albapunctata</i> Schiner	---; ---; 75	Kröber	1934
<i>biguttata</i> Phillipi	---; ---; 75	Kröber	1934
<i>elegans</i> Phillipi	---; ---; 75	Kröber	1934
<i>kröberi</i> Lindner	---; ---; 75	Kröber	1934
<i>longicauda</i> Bigot	---; ---; 75	Kröber	1934
<i>vulpes</i> Macquart	---; ---; 75	Kröber	1934
<i>monticola</i> Phillipi	---; ---; 75	Kröber	1934
<i>CRYPTINUS</i>			
<i>Stone</i>	---; ---; 328	Stone	1944

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CRYPTOTYLUS</i>			
<i>limonius</i> Townsend	---; May-Nov.; 237	Fairchild	1942
<i>luteoflavus</i> Bellardi	---; all year; 237	Fairchild	1942
<i>pallidipalpis</i> Stone	---; ---; 328	Stone	1944
<i>unicolor</i> Wiedemann	---; ---; 53	Lutz & Machado	1915
	---; all year; 237	Fairchild	1942
<i>DASYBASIS</i>			
<i>columbiana</i> (Enderlein)	---; Sept.; 328. ---; ---; 352	Stone	1944
<i>DASYOMIA</i>			
<i>bogotana</i> Enderlein	---; ---; 82	Kröber	1934
<i>cineta</i> Fabricius	---; ---; 69	Kröber	1934
	---; ---; 204	Kröber	1929 c
<i>gagatina</i> Philippi	---; ---; 75	Kröber	1934
<i>DASYPHYRTA</i>			
<i>maculipennis</i> Macquart	---; ---; 53, 82	Kröber	1932 a
<i>DIACHLORUS</i>			
<i>afflictus</i> Wiedemann	---; ---; 53	Kröber	1934
<i>altivagus</i> Lutz	---; at 1270 meters elevation; 53	Lutz	1913
<i>andusei</i> Stone	---; Jan., October, Dec.; 328	Stone	1944
<i>angustifrons</i> Kröber	---; ---; 53	Kröber	1934
<i>bicinctus</i> Fabricius	---; Aug.; 53, 297	Strong et al.	1926
	---; ---; 328	Pechuman	1942
<i>bimaculatus</i> Wiedemann	---; ---; 51	Kröber	1934
	---; May; 53	Lutz	1913
<i>bipunctatus</i>	---; ---; 239	Lutz et al.	1918

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>DIACHLORUS</i>			
<i>bivittatus</i> Wiedemann	---; ---; 53	Kröber	1934
<i>conspicuus</i> Lutz	---; ---; 27	Lutz et al.	1918
	---; ---; 53	Kröber	1934
<i>curvipes</i> Fabricius	---; Oct.-Feb.; 53	Lutz	1913
	---; July; 53	Strong et al.	1926
	---; ---; 129°	Cleare	1919
	---; ---; 130, 237, 325	Kröber	1934
<i>curvipes</i> var. <i>trivittatus</i> Lutz	---; ---; 53	Kröber	1934
<i>distinctus</i> Lutz	---; ---; 53	Kröber	1934
<i>distinctus</i> var. <i>catharinensis</i> Lutz	---; ---; 53	Kröber	1934
<i>fascipennis</i> Lutz	---; July; 53	Lutz	1913
<i>ferrugatus</i> Fabricius	---; ---; 53, 69, 204	Kröber	1934
	---; ---; 128, 137, 138	Bequaert	1931
	---; mangrove swamps, at coast resting on leaves; 137°	Bequaert	1925
	---; ---; 346	Philip	1947
<i>flavitaenia</i> Lutz	---; ---; 27, 239	Kröber	1934
	Rivers; summer and most of winter; 53°	Lutz	1913
<i>fuscipennis</i> Macquart	---; ---; 53	Kröber	1934
<i>fuscostigma</i> Lutz	---; ---; 53, 297	Kröber	1934
<i>glaber</i> Wiedemann	---; ---; 53	Kröber	1934
<i>immaculatus</i> Wiedemann	---; ---; 53	Kröber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>DIACHLORUS</i>	---; ---; 223	Woke	1947
<i>jobbinsi</i> (Fairchild)	---; ---; 237	Fairchild	1943
<i>neivai</i> Lutz	---; ---; 53 ---; ---; 53°	Kröber Lutz	1934 1913
<i>nigristigma</i> Neiva & Penna	---; ---; 53	Neiva & Penna	1916
<i>nigrithorax</i> Kröber	---; ---; 129	Kröber	1934
<i>ochraceus</i> Macquart	---; ---; 27 ---; ---; 53, 297	Lutz Kröber	1913 1934
<i>pandorus</i> Lutz	---; Aug.; 53	Strong et al.	1926
<i>podagricus</i> Fabricius	---; ---; 53 ---; ---; 129°	Kröber Cleare	1934 1919
<i>scutellatus</i> Macquart	---; July; 53, 129, 130 ---; Dec.; 53 ---; ---; 129°	Strong et al. Lutz Cleare	1926 1913 1919
<i>terminalis</i> (Macquart)	---; ---; 53	Strong et al.	1926
<i>vitripennis</i> Lutz	---; ---; 53	Lutz	1913
<i>DIATOMINEURA</i>			
<i>exrens</i> Walker	---; ---; 53	Lutz & Neiva	1914
<i>fenestrata</i> (Macquart)	---; ---; 53	Lutz & Neiva	1914
<i>tabanipennis</i> (Macquart)	---; ---; 53	Lutz & Neiva	1914
<i>NICHELACERA</i>			
<i>alciornis</i> Wiedemann	---; at windows, all summer; 53° ---; ---; 53, 239	Lutz Kröber	1915 1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>DICHELACERA</i>			
<i>alcis</i> (Williston)	---; ---; 24	Bequaert	1940
<i>analís</i> Hine	---; ---; 85, 237	Kröber	1934
	---; jungle and woods, bites man, horses, mules; 223°	Woke	1947
	---; bites throughout day into late evening, vicious, persistent biters, attracted by motion; 237°	Dunn	1934
	---; May-Nov.; 237	Fairchild	1942
	---; ---; 238	Hine	1920 a
<i>bifacies</i> Walker	---; Feb.; 53	Lutz	1915
<i>callosa</i> Lutz	---; July-Aug.; 53	Lutz	1915
	---; ---; 53	Kröber	1934
<i>caloptera</i> Hine	---; ---; 204	Kröber	1934
<i>capricornis</i> Kröber	---; ---; 69, 130, 297	Kröber	1931 d
<i>cervicornis</i> Fabricius	---; ---; 51, 53, 204, 237, 297	Kröber	1934
	---; ---; 240	Lutz	1915
<i>costaricensis</i> Kröber	---; ---; 82, 85	Kröber	1931 d
<i>damicornis</i> Fabricius	---; ---; 53	Kröber	1934
	---; bites man readily in forest area; 129°	Cleare	1919
	---; ---; 297	Lutz	1915
	---; ---; 328	Pechuman	1942
<i>decipiens</i> Kröber	---; ---; 53	Kröber	1934
<i>difficilis</i> Kröber	---; ---; 53, 129	Kröber	1931
	---; ---; 297	Kröber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>DICHELACERA</i>			
<i>fraterna</i> Kröber	---; ---; 53	Kröber	1934
<i>fulminea</i> (Hine)	---; ---; 137	James	1950
	---; ---; 237	Fairchild	1943
<i>fuscipes</i> Lutz & Meiva	---; ---; 27, 53	Kröber	1929 a
<i>grandis</i> Ricardo	---; ---; 137	Kröber	1934
<i>intermedia</i> Lutz	---; ---; 53	Kröber	1934
<i>januarii</i> Wiedemann	---; Oct.; 53, 239	Lutz	1915
<i>januarii</i> var. <i>pseudojanuarii</i> Kröber	---; ---; 53	Kröber	1934
<i>januarii</i> var. <i>rubricosa</i> van der Wulp	---; ---; 27, 53	Kröber	1934
<i>laerifascia</i> Lutz	---; ---; 53	Kröber	1934
<i>leucomelas</i> Meiva & Penna	---; ---; 53	Meiva & Penna	1916
<i>limbatinervis</i> Kröber	---; ---; 239	Kröber	1934
<i>marginata</i> Macquart	---; ---; 53, 99, 129, 130, 204, 237, 328	Strong et al.	1926
	---; ---; 82	Kröber	1929 b
	---; jungle; 223°	Woke	1947
	---; ---; 239	Lutz et al.	1918
<i>melanoptera</i> Hine	---; July-Aug.; 129	Hine	1920 a
<i>melanosoma</i> Hine	---; ---; 85	Hine	1920 a
<i>micraoantha</i> Lutz	---; ---; 27, 53	Kröber	1934
<i>modesta</i> Lutz	---; ---; 53	Kröber	1934
	---; ---; 239	Lutz et al.	1918

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>DICHELACERA</i>			
<i>multiguttata</i> Lutz	---; ---; 53	Kröber	1934
<i>ochracea</i> Hine	---; ---; 53, 329, 347	Kröber	1934
	---; ---; 129	Hine	1920 a
	---; ---; 352	Bequaert	1940
<i>parvidens</i> Enderlein	---; ---; 239	Kröber	1934
<i>plagiata</i> Brèthes	---; ---; 53	Kröber	1934
<i>pseudojanuarii</i> Kröber	---; ---; 53	Kröber	1931 d
<i>pulohra</i> Williston	---; ---; 137	James	1950
	---; ---; 204	Kröber	1934
<i>regina</i> Fairchild	---; ---; 237	Fairchild	1943
<i>rubiginosa</i> Sumner	---; ---; 129	Kröber	1934
<i>rubricosa</i> van der Wulp	---; ---; 27	Lutz	1915
<i>salvadorensis</i> Lutz	---; ---; 128, 204, 262	Kröber	1934
<i>scapularis</i> Macquart	---; ---; 82	Patino- Camargo	1940
	---; ---; 137	Bequaert	1940
	---; ---; 204	Kröber	1934
<i>scutellata</i> Williston	---; ---; 53°	Lutz	1915
<i>soror</i> Kröber	---; ---; 51	Kröber	1934
<i>submarginata</i> Lutz	---; ---; 51, 53, 99, 240, 297	Kröber	1934
	---; ---; 237°	Dunn	1934
	---; ---; 328	Stone	1944

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>DICHELACERA</i>	---; ---; 82, 328	Krüber	1934
<i>testacea</i>			
Macquart	---; readily bites man in forest area; 129° (Bite produces local irritation and swelling)	Clear	1919
<i>t-nigrum</i>	---; ---; 53	Krüber	1934
Fabricius	---; ---; 130	Lutz	1915
<i>transposita</i>	---; ---; 237	Fairchild	1943
(Walker)			
<i>trioalloa</i>	---; ---; 240	Krüber	1934
Krüber			
<i>trigonotaenia</i>	---; ---; 53, 239	Krüber	1934
Lutz	---; ---; 325	Lutz	1915
<i>unifasciata</i>	---; ---; 27, 53	Krüber	1934
Macquart			
<i>varia</i>	---; ---; 53	Krüber	1934
Wiedemann			
<i>DICLADOCERA</i>	---; ---; 53, 82, 99, 240	Krüber	1934
<i>acherontina</i>			
Krüber	---; Nov.; 328	Stone	1944
<i>altivaga</i>	---; ---; 53	Krüber	1934
Lutz			
<i>badia</i>	---; ---; 237	Krüber	1934
Krüber			
<i>barbiellinii</i>	---; ---; 53	Krüber	1934
Borgmeier			
<i>basirufa</i>	---; ---; 82, 99	Krüber	1934
Walker			
<i>bicolor</i>	---; ---; 53	Krüber	1934
Krüber			
<i>caloptera</i>	---; ---; 53, 82	Krüber	1934
Schiner	---; May, Aug.-Sept.; 328	Stone	1944
<i>conspicua</i>	---; ---; 53	Krüber	1934
Lutz & Meiva			
<i>corta</i>	---; ---; 53	Krüber	1934
Krüber	---; Nov.; 328	Stone	1944

TABLE 1 - MORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>DICLADOCERA</i>			
<i>fulvicornis</i> Kröber	---; ---; 99, 240	Kröber	1931 d
<i>furcata</i> Wiedemann	---; ---; 53	Lutz & Neiva	1914
<i>griseipennis</i> Kröber	---; ---; 51	Kröber	1934
<i>guttipennis</i> Wiedemann	---; ---; 53	Kröber	1934
<i>hamata</i> van der Wulp	---; ---; 27	Kröber	1934
<i>hoppi</i> Enderlein	---; ---; 240	Kröber	1934
<i>lin.bativena</i> Enderlein	---; ---; 82, 99	Kröber	1934
<i>macrospila</i>	---; ---; 27, 53	Lutz et al.	1918
<i>macula</i> Macquart	---; ---; 51, 53, 99, 240, 328	Kröber	1934
<i>maculata</i> Macquart	---; ---; 328	Pechuman	1942
<i>maculistigma</i> Enderlein	---; ---; 240	Kröber	1934
<i>minos</i> Schiner	---; ---; 51, 82, 240, 328	Kröber	1934
<i>neo-submacula</i> Kröber	---; ---; 51, 99	Kröber	1934
<i>nova</i> Kröber	---; ---; 51	Kröber	1934
<i>ooheronites</i> Kröber	---; ---; 328	Pechuman	1942
<i>perplexa</i> Walker	---; ---; 82	Kröber	1934
<i>potator</i> (Wiedemann)	---; ---; 53	Lutz & Neiva	1914
<i>prosterewis</i> (Walker)	---; ---; 53	Lutz & Neiva	1914

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>DICLADOCERA</i>			
<i>reliata</i> Meiva & Penna	---; ---; 53	Meiva & Penna	1916
<i>riveti</i> Surcouf	---; ---; 99	Kröber	1934
<i>rubiginipennis</i> Macquart	---; ---; 51, 82, 99	Kröber	1934
<i>simulans</i> Meiva & Penna	---; ---; 53	Meiva & Penna	1916
<i>steinheili</i> Enderlein	---; ---; 82	Kröber	1934
<i>sulphurea</i> Kröber	---; ---; 328	Kröber	1934
<i>unoinata</i> van der Wulp	---; ---; 27	Kröber	1934
<i>unicolor</i> Lutz	---; ---; 53	Kröber	1934
<i>DUDAELLA</i>			
<i>punctulipennis</i> Enderlein	---; ---; 53	Kröber	1934
<i>soythropus</i> Schiner	---; ---; 53	Kröber	1934
<i>ELAPHELLA</i>			
<i>cervus</i> Wiedemann	---; ---; 53, 240, 297	Kröber	1934
<i>EREPHOPSIS</i>			
<i>albipectus</i> (Bigot)	---; ---; 53	Lutz & Meiva	1914
<i>beskii</i> (Wiedemann)	---; ---; 53	Lutz & Meiva	1914
<i>leucopogon</i> (Wiedemann)	---; ---; 53	Lutz & Meiva	1914
<i>lingens</i> (Wiedemann)	---; ---; 53	Lutz & Meiva	1914
<i>nigripennis</i> (Wiedemann)	---; ---; 53	Lutz & Meiva	1914
<i>pubescens</i> Lutz	---; ---; 53	Lutz & Machado	1915

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>EREPHOPSIS</i>			
<i>pygmaea</i> Lutz & Machado	---; ---; 53	Lutz & Machado	1915
<i>scionoides</i> Lutz & Machado	---; ---; 53	Lutz & Machado	1915
<i>sorbens</i> Wiedemann	---; ---; 51, 53	Kröber	1929 a
<i>winthemi</i> (Wiedemann)	---; ---; 53	Lutz & Meiva	1914
<i>xanthopogon</i> Macquart	---; ---; 53	Lutz & Machado	1915
<i>ERISTALOTABANUS</i>			
<i>violaceus</i> Kröber	---; ---; 53 ---; ---; 99	Kröber Kröber	1934 1931 c
<i>ESENBÄCKIA</i>			
<i>arouata</i> Williston	---; ---; 53, 99, 240 ---; ---; 82	Kröber Kröber	1934 1932
<i>arouata</i> var. <i>ricardoes</i> Lutz & Castro	---; Nov.; 53	Lutz & Castro	1935
<i>argentina</i> Kröber	---; ---; 27	Kröber	1934
<i>balsapambana</i> Enderlein	---; ---; 99	Kröber	1934
<i>bitriangulata</i> Lutz & Castro	---; Apr.; 240	Lutz & Castro	1935
<i>chaguanensis</i> Fairchild	---; ---; 237	Fairchild	1943
<i>olari</i> Lutz	---; ---; 53	Kröber	1934
<i>olari</i> var. <i>infusata</i> Lutz	---; ---; 53	Kröber	1934
<i>olari</i> var. <i>nigricans</i>	---; ---; 53	Lutz et al.	1918
<i>diaphana</i> Schiner	---; ---; 82 ---; ---; 328	Kröber Kröber	1934 1932

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>ESENBECKIA</i>			
<i>distinguenda</i> Lutz & Castro	---; ---; 99	Lutz & Castro	1935
<i>dubia</i> Lutz	---; ---; 27, 53, 239	Kröber	1932
<i>ecuadorensis</i> Lutz & Castro	---; ---; 99	Lutz & Castro	1935
<i>enderleini</i> Kröber	---; ---; 27, 53	Kröber	1934
<i>erosa</i> Enderlein	---; ---; 27	Kröber	1932
	---; ---; 51, 53	Kröber	1934
<i>esenbeckii</i> Wiedemann	---; ---; 27, 53, 239	Kröber	1934
<i>fascipennis</i> Macquart	---; ---; 75	Kröber	1934
<i>ferruginea</i> (Macquart)	---; ---; 51, 53, 328	Kröber	1934
	---; forest trails; 137*	Bequaert	1925
<i>ferruginea</i> var. <i>nigrovillosa</i> Kröber	---; ---; 239	Kröber	1934
<i>filipalpis</i> Williston	---; ---; 85, 239	Kröber	1934
<i>fuscipennis</i> Wiedemann	---; ---; 53, 328	Kröber	1934
<i>fuscipennis</i> var. <i>fenestrata</i> Lutz	---; ---; 53	Kröber	1934
<i>fuscipennis</i> var. <i>lutai</i> Enderlein	---; ---; 53	Kröber	1934
	---; ---; 328	Pechuanan	1942
<i>fuscipennis</i> var. <i>minor</i> Kröber	---; ---; 85	Kröber	1934
<i>illota</i> Williston	---; ---; 137, 204	Kröber	1934
	---; ---; 138	Bequaert	1931

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>ESENBECKIA</i>			
<i>infrataeniata</i> Lutz & Castro	---; ---; 239	Lutz & Castro	1935
<i>insignis</i> Kröber	---; ---; 51	Kröber	1934
<i>lemniscata</i> Enderlein	---; ---; 53, 239	Kröber	1932
<i>lugubris</i> Macquart	---; ---; 53, 239	Kröber	1934
<i>macquarti</i> Guerin	---; ---; 75	Kröber	1934
<i>matogrossensis</i> Lutz	---; ---; 53	Kröber	1934
<i>mejiai</i> Fairchild	---; ---; 137	James	1950
<i>melanogaster</i> Lutz & Castro	---; Apr.; 240	Lutz & Castro	1935
<i>neglecta</i> Lutz & Neiva	---; ---; 53	Kröber	1934
<i>nigricorpus</i> Lutz	---; ---; 53	Kröber	1934
<i>nigriventris</i> Kröber	---; ---; 240	Kröber	1934
<i>notabilis</i> Walker	---; ---; 53, 352	Kröber	1934
<i>obscurithorax</i> Lutz & Castro	---; Dec.; 53. ---; Nov.; 239	Lutz & Castro	1935
<i>prasiniventris</i> Macquart	---; ---; 53, 69, 82, 129	Kröber	1934
	---; ---; 85	Kröber	1932
	---; forest trails; 137°	Bequaert	1925
	---; ---; 137, 352	Bequaert	1940
	---; Dec.-Feb.; 237	Fairchild	1942
	---; June, Nov.; 328	Stone	1944

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>ESENECKIA</i> <i>reinburgi</i> Surcouf	---; ---; 99	Kröber	1934
<i>semitiridis</i> Ricardo	---; ---; 328	Kröber	1934
<i>subvaria</i> Walker	---; ---; 82, 328	Kröber	1934
<i>saturnalis</i> Rondani	---; ---; 53	Kröber	1934
<i>testaceiventris</i> Macquart	---; ---; 75, 99, 240, 328	Kröber	1934
<i>tetragoniphora</i> Lutz & Castro	---; ---; 51	Lutz & Castro	1935
<i>tinotipennis</i> Kröber	---; ---; 82	Kröber	1934
<i>translucens</i> Macquart	---; ---; 53, 69, 99, 240	Kröber	1934
	---; ---; 237	Fairchild	1943
	---; ---; 328	Pechuman	1942
<i>tristis</i> Kröber	---; ---; 53	Kröber	1934
<i>tucumana</i> Brethes	---; ---; 77	Kröber	1934
<i>vulpes</i> Wiedemann	---; ---; 53, 240	Kröber	1934
<i>vulpes</i> var. <i>affinis</i> Kröber	---; ---; 51	Kröber	1934
<i>EUTABANUS</i> <i>pictus</i> Kröber	---; ---; 240, 297	Kröber	1934
<i>PIDENA</i> <i>alutnensis</i> Lutz	---; ---; 53	Kröber	1934
<i>atra</i> Phillipi	---; ---; 75	Gilman	1935

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>FIDENA</i>			
<i>atripes</i> von Röder	---; ---; 51, 75, 99	Kröber	1934
<i>cureopygia</i> Kröber	---; ---; 82	Kröber	1934
<i>aureosericea</i> Kröber	---; ---; 51	Kröber	1934
<i>auribarba</i> Enderlein	---; ---; 82	Kröber	1934
<i>auribarba</i> var. <i>albibarba</i> Enderlein	---; ---; 82	Kröber	1934
<i>auricauda</i> Enderlein	---; ---; 27, 82, 99, 328	Kröber	1934
<i>auricincta</i> Lutz & Neiva	---; ---; 53	Kröber	1934
<i>aurifasciata</i> Enderlein	---; ---; 53, 239	Kröber	1934
<i>aurimaculata</i> Macc. & t	---; ---; 53	Kröber	1934
<i>auripes</i> Ricardo	---; ---; 53	Kröber	1934
<i>basilaris</i> Wiedemann	---; ---; 53	Kröber	1934
<i>basilaris</i> var. <i>acutipalpis</i> Kröber	---; ---; 53	Kröber	1934
<i>besckii</i> Wiedemann	---; ---; 53	Kröber	1934
<i>bicolor</i> Kröber	---; ---; 85	Kröber	1934
<i>brahycephala</i> Kröber	---; ---; 53	Kröber	1934
<i>brasiliensis</i> Kröber	---; ---; 53	Kröber	1934
<i>crustanea</i> Perty	---; ---; 53	Kröber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>FIDENA</i>			
<i>castaneiventris</i> Kröber	---; ---; 99	Kröber	1934
<i>columbiensis</i> Kröber	---; ---; 82	Kröber	1934
<i>convergens</i> Enderlein	---; ---; 27	Kröber	1934
<i>decipiens</i> Kröber	---; ---; 53	Kröber	1934
<i>erionera</i> Macquart	---; ---; 53	Kröber	1934
<i>erioneroides</i> Lutz	---; ---; 53 ---; ---; 239	Kröber Lutz et al.	1934 1918
<i>flavicornis</i> Lutz	---; ---; 53	Kröber	1934
<i>flavipennis</i> Kröber	---; ---; 328	Kröber	1934
<i>florisuga</i> Lutz	---; ---; 53	Kröber	1934
<i>foetterlei</i> Lutz	---; ---; 53	Kröber	1934
<i>fulvitibialis</i> Ricardo	---; ---; 53 ---; ---; 82	Kröber Patino- Camargo	1934 1940
<i>fulvosericea</i> Kröber	---; ---; 82 ---; ---; 237	Kröber Fairchild	1934 1943
<i>fumifera</i> Walker	---; ---; 53	Kröber	1934
<i>gracilis</i> Kröber	---; ---; 53, 82 ---; ---; 237	Kröber Fairchild	1934 1943
<i>howardi</i> Fairchild	---; ---; 237	Fairchild	1943
<i>indistincta</i> Macquart	---; ---; 53	Kröber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>FIDENA</i>			
<i>latiniac</i> Fairchild	---; ---; 237	Fairchild	1943
<i>laterina</i> Rondani	---; ---; 69	Kröber	1934
<i>latifrons</i> Kröber	---; ---; 53	Kröber	1934
<i>leucopogon</i> Wiedemann	---; ---; 53	Kröber	1934
<i>lingens</i> Wiedemann	---; ---; 53, 75	Kröber	1934
<i>longipalpis</i> Enderlein	---; ---; 53	Kröber	1934
<i>loricornis</i> Kröber	---; ---; 53	Kröber	1934
<i>maculipennis</i> Kröber	---; ---; 53	Kröber	1934
<i>marginalis</i> Wiedemann	---; ---; 53	Kröber	1934
<i>mattogrossensis</i> Lutz	---; ---; 53; 99	Kröber	1934
<i>morio</i> van der Wulp	---; ---; 27	Kröber	1934
<i>neglecta</i> Kröber	---; ---; 27	Kröber	1934
<i>neo-winthemi</i> Kröber	---; ---; 53	Kröber	1934
<i>nigra</i> Ricardo	---; ---; 297	Kröber	1934
<i>nigricans</i> Lutz	---; ---; 53	Kröber	1934
<i>nigricorpus</i> Kröber	---; ---; 53	Lutz et al.	1918
<i>nigripes</i> von Röder	---; ---; 53	Kröber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>FIDENA</i>			
<i>nitens</i> Bigot	---; -- ; 53	Kröber	1934
<i>niveibarba</i> Kröber	---; ---; 53	Kröber	1934
<i>nubiapex</i> Lutz	---; ---; 53	Kröber	1934
<i>obscuripes</i> Kröber	---; ---; 53	Kröber	1934
<i>obtusipalpis</i> Enderlein	---; ---; 53	Kröber	1934
<i>ochracea</i> Kröber	---; May, Aug., Sept.; 328	Stone	1944
<i>opaca</i> Bräthes	---; ---; 27	Kröber	1934
<i>ornata</i> Kröber	---; ---; 53	Kröber	1934
<i>pallida</i> Kröber	---; ---; 27	Kröber	1931 e
	---; ---; 75	Kröber	1934
<i>pallidula</i> Kröber	---; ---; 53	Kröber	1934
<i>penicillata</i> Bigot	---; ---; 53	Kröber	1934
<i>pseudo-aurimaculata</i> Lutz	---; ---; 53, 297	Kröber	1934
<i>pseudo-fulvithorax</i> Kröber	---; ---; 53	Kröber	1934
<i>pubescens</i> Lutz	---; ---; 53	Kröber	1934
<i>pusilla</i> Lutz	---; ---; 53	Kröber	1. 34
<i>pyrausta</i> (Osten-Sacken)	---; ---; 82, 99, 237, 240	Kröber	1934
	---; March, Aug.; 328	Stone	1944

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>PIDENA</i>			
<i>rhinophora</i> Bellardi	---; ---; 204	Kröber	1934
<i>rubrithorax</i> Kröber	---; ---; 53	Kröber	1934
<i>rufibasis</i> Kröber	---; ---; 53	Kröber	1934
<i>ruficornis</i> Kröber	---; ---; 53	Kröber	1934
<i>schildi</i> Hine	---; ---; 85	Kröber	1934
<i>soledadei</i> Lutz	---; ---; 53	Kröber	1934
<i>sörbens</i> Wiedemann	---; ---; 27, 51, 53, 239, 325	Kröber	1934
<i>winthemi</i> Wiedemann	---; ---; 53	Kröber	1934
<i>zonalis</i> Kröber	---; ---; 240	Kröber	1934
<i>GYMNOCHELA</i>			
<i>discifer</i> Walker	---; ---; 53, 297	Kröber	1929 b
<i>HEMICHRYSOPS</i>			
<i>fascipennis</i> Kröber	---; ---; 82	Kröber	1934
<i>HETEROCHRYSOPS</i>			
<i>variegatus</i> De Geer	---; ---; 18, 21, 27, 53, 82, 130, 138, 204, 240, 328	Kröber	1929 b
<i>HETEROSTOMUS</i>			
<i>curvialpis</i> Bigot	---; ---; 75	Kröber	1934
<i>HIMANTOSTYLUS</i>			
<i>intermedius</i> Lutz	---; ---; 239 ---; ---; 240	Lutz et al. Kröber	1918 1934
<i>HISTRIGSILVIUS</i>			
<i>longipalpis</i> Macquart	---; ---; 53	Kröber	1934
<i>HYDROMITRA</i>			
<i>olnata</i> (Fabricius)	---; ---; 204	Philip	1947

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>HYBOMITRA</i> <i>quadripunctatus</i> var. <i>amabilis</i> (Walker)	---; ---; 137	James	1950
<i>IONOPIS</i> <i>foetterlei</i> Lutz	---; ---; 53	Lutz & Neiva	1914
<i>LAPHRIONYIA</i> <i>bicolor</i> Kröber	---; ---; 53	Kröber	1934
<i>miniatistola</i> Enderlein	---; ---; 51	Kröber	1934
<i>miniatistola</i> var. <i>flavithorax</i> Kröber	---; ---; 51	Kröber	1934
<i>mirabilis</i> Lutz	---; ---; 53	Kröber	1934
<i>palliditarsis</i> Kröber	---; ---; 51	Kröber	1934
<i>LEPIDOSELAGA</i> <i>aberrans</i> Lutz	---; in July; 53°	Lutz	1913
<i>albitarsis</i> Macquart	---; ---; 27	Kröber	1929 a
<i>crassipes</i> Fabricius	---; ---; 18, 27, 53, 82, 204, 239, 297, 328, 347	Kröber	1929
	---; ---; 53°, 68, 352	Lutz	1913
	---; low-lying river regions; 82°	Dunn	1929
	---; coastlands; 129°	Cleare	1919
<i>lepidota</i> Wiedemann	---; ---; 53	Lutz et al.	1918
	Leaf bases of <i>Pistia stratiotes</i> in rivers, streams and pools; ---; 237	Dunn	1934
<i>major</i> Szilady	---; ---; 18	Szilady	1926
<i>paradoxa</i> Lutz	---; ---; 53	Neiva & Penna	1916
<i>LEPISELAGA</i> <i>aberrans</i> Lutz	---; ---; 53	Kröber	1934
<i>albitarsis</i> Macquart	---; ---; 27, 53, 239, 325	Kröber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>LEPISELAGA</i> <i>crusaipea</i> Fabricius	---; ---; 18, 22, 27, 91, 127, 352. ---; bites man; 346°	Bequaert	1940
	---; ---; 27, 53°, 99, 204	Strong et al.	1926
	---; ---; 69	Kröber	1934
	---; ---; 82	Patino- Camargo	1940
	---; along banks of streams; 137°	Bequaert	1925
	---; ---; 137	James	1950
	---; ---; 237	Fairchild	1943
	---; May; 328	Stone	1944
<i>lepidota</i> Wiedemann	---; ---; 53, 347	Lutz	1913
	---; Nov.-Feb.; 53	Smillie	1923
<i>LEPTAPHA</i> <i>fumata</i> Wiedemann	---; ---; 53	Kröber	1934
<i>LEPTOFIDENA</i> <i>beelzebub</i> Kröber	---; ---; 27	Kröber	1934
<i>LEPTOTABANUS</i> <i>nigrovenosus</i> Lutz	---; ---; 53	Lutz & Neiva	1914
<i>LEUCOTABANUS</i> <i>albicans</i> Macquart	---; ---; 53, 82, 128, 204, 239, 328	Kröber	1934
<i>albidocinctus</i> Bigot	---; ---; 53	Kröber	1934
<i>albovarius</i> Walker	---; ---; 53	Kröber	1934
<i>ambiguus</i> Stone	---; ---; 128	Philip	1947
<i>arvensis</i> Brèthes	---; ---; 27	Kröber	1934
<i>canithorax</i> Fairchild	---; ---; 237	Fairchild	1943

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>LEUCOTABANUS</i>	---; ---; 237	Fairchild	1943
<i>flavinotum</i> (Kröber)	---; Sept.; 328	Stone	1944
<i>leucaspis</i> Wiedemann	---; ---; 27, 51, 53, 129, 137, 204, 239	Kröber	1929 a
	---; ---; 82	Patino- Camargo	1940
	---; ---; 128, 240	Kröber	1929 c
	---; ---; 223	Woke	1947
	---; Mar.-Jan.; 237	Fairchild	1942
	---; Sept., Dec.; 328	Stone	1944
<i>nigristigma</i>	---; ---; 53	Lutz et al.	1918
<i>nigriventris</i> Kröber	---; ---; 204	Kröber	1934
<i>pallidus</i> Kröber	---; ---; 51	Kröber	1934
<i>sarcophagoides</i> Lutz	---; ---; 328	Kröber	1934
<i>unicinctus</i> Walker	---; ---; 53	Kröber	1934
<i>LILAEINA</i>			
<i>acutipalpis</i> Enderlein	---; ---; 75	Kröber	1934
<i>albifrons</i> Macquart	---; ---; 75	Kröber	1934
<i>subulipalpis</i> Enderlein	---; ---; 75	Kröber	1934
<i>LINAPHA</i>			
<i>modesta</i> Kröber	---; ---; 53	Kröber	1934
<i>scripta</i> Enderlein	---; ---; 53	Kröber	1934
<i>LISTRAPHA</i>			
<i>acutipalpis</i> Enderlein	---; ---; 75	Enderlein	1929
<i>doreoguttata</i> Macquart	---; ---; 75	Kröber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>LISTRAPHA</i>			
<i>fenestrata</i> Macquart	---; ---; 53	Kröber	1934
<i>ferruginea</i> Enderlein	---; ---; 53	Kröber	1934
<i>grisea</i> Jaennicke	---; ---; 75	Kröber	1934
<i>latipalpis</i> Macquart	---; ---; 75, 240	Kröber	1934
<i>leucothorax</i> Picardo	---; ---; 75	Kröber	1934
<i>molesta</i> (Wiedemann)	---; ---; 53	Kröber	1934
	---; ---; 328	Stone	1944
<i>olivaceiventris</i> Kröber	---; ---; 53, 75	Kröber	1934
<i>subulipalpis</i> Enderlein	---; ---; 75	Enderlein	1929
<i>tabanipennis</i> Macquart	---; ---; 53	Kröber	1934
<i>viridiventris</i> Macquart	---; ---; 75, 328	Kröber	1934
<i>vittata</i> Phillipi	---; ---; 75	Kröber	1934
<i>LISTRAPHELLA</i>			
<i>imitans</i> Enderlein	---; ---; 75	Kröber	1934
<i>schoenemanni</i> Enderlein	---; ---; 75	Kröber	1934
<i>LISIRIOSCA</i>			
<i>angustifrons</i> Enderlein	---; ---; 75	Kröber	1934
<i>australis</i> Philippi	---; ---; 27, 75	Kröber	1934
<i>viridula</i> Kröber	---; ---; 75	Kröber	1934
<i>flavipes</i> Enderlein	---; ---; 75	Kröber	1934

TABLE 1 - HOKSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>LISTRIOSCA</i>	---; ---; 27	Lutz et al.	1918
<i>longipennis</i>	---		
Ricardo	---; ---; 53	Kröber	1934
	---; ---; 328	Pechuman	1942
<i>LUTZIELLA</i>			
<i>cristalis</i>	---; ---; 53, 239	Kröber	1934
Lutz			
<i>intermedia</i>	---; ---; 53	Kröber	1934
Lutz			
<i>quinquecinota</i>	---; ---; 53	Kröber	1934
Lutz			
<i>MELANOTABANUS</i>			
<i>fuliginosus</i>	---; ---; 53	Kröber	1934
Lutz & Neiva			
<i>MELPIA</i>			
<i>analis</i>	---; ---; 53, 82	Kröber	1934
Fabricius			
<i>auripes</i>	---; ---; 53	Strong et al.	1926
(Ricardo)			
<i>brevistria</i>	---; ---; 53	Strong et al.	1926
(Lutz)			
<i>erythronotata</i>	---; ---; 53	Kröber	1934
Bigot			
<i>fulvithorax</i>	---; ---; 18, 53	Kröber	1934
Wiedemann			
<i>funifera</i>	---; ---; 53	Strong et al.	1926
(Walker)			
<i>leonina</i>	---; ---; 53	Kröber	1934
Lutz			
<i>ornata</i>	---; ---; 53	Kröber	1934
Kröber			
<i>pseudo-aurimaculata</i>	---; ---; 53	Strong et al.	1926
(Lutz)			
<i>splendens</i>	---; ---; 53	Kröber	1934
Lutz			
<i>tenuistria</i>	---; ---; 53	Kröber	1934
Walker			
<i>venosa</i>	---; ---; 53	Kröber	1934
Wiedemann			

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>NYCTEROMYIA</i>			
<i>brevirostris</i> Phillipi	---; ---; 75	Kröber	1934
<i>cinerascens</i> Bigot	---; ---; 75	Kröber	1934
<i>conica</i> Bigot	---; ---; 75	Kröber	1934
<i>edwardsi</i> Kröber	---; ---; 75	Kröber	1934
<i>fusca</i> Phillipi	---; ---; 75	Kröber	1934
<i>matogrossensis</i> Lutz	---; ---; 53	Kröber	1934
<i>marina</i> Phillipi	---; ---; 75	Kröber	1934
<i>NEOPANGONIA</i>			
<i>pusilla</i> Lutz	---; ---; 53	Lutz & Neiva	1914
<i>NEOTABANUS</i>			
<i>comitatus</i> Wiedemann	---; ---; 53	Lutz & Machado	1915
<i>dorsiger</i> Wiedemann	---; ---; 53	Neiva & Penna	1916
<i>modestus</i> Wiedemann	---; ---; 53	Lutz & Neiva	1914
<i>obsoletus</i> Wiedemann	---; ---; 53	Lutz & Neiva	1914
<i>ochrophilus</i> Lutz	---; ---; 53	Lutz & Machado	1915
<i>triangulum</i> Wiedemann	---; ---; 53	Lutz & Neiva	1914
<i>trilineatus</i> Latreille	---; ---; 53	Lutz & Neiva	1914
<i>trimotatus</i> Wiedemann	---; ---; 53	Lutz & Neiva	1914
<i>trivittatus</i> Fabricius	---; ---; 53	Lutz & Neiva	1914
<i>Orthocentrus</i>			
<i>brevihornus</i> Enderlein	---; ---; 82	Kröber	1931 c
<i>interrogatus</i> Enderlein	---; ---; 82	Kröber	1931 c

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>OMALLIA</i> <i>thiemeana</i> Enderlein	---; ---; 99	Kröber	1931 c
<i>JOPELMA</i> <i>globicornis</i> Viedemann	---; ---; 53	Kröber	1934
<i>ORTHOSTYLOCERAS</i> <i>ambiguus</i> Lutz & Neiva	---; ---; 53	Kröber	1934
<i>ORTHOSTYLUS</i> <i>ambiguus</i> Lutz & Neiva	---; ---; 53	Kröber	1931 c
<i>OSCA</i> <i>albithorax</i> Macquart	---; ---; 75	Kröber	1934
<i>aureonigra</i> Kröber	---; ---; 240	Kröber	1934
<i>collaris</i> Phillipi	---; ---; 75	Kröber	1934
<i>faceta</i> Enderlein	---; ---; 75	Kröber	1934
<i>lata</i> Guérin	---; ---; 75	Kröber	1934
<i>rubriventris</i> Kröber	---; ---; 51, 240	Kröber	1934
<i>rufa</i> Macquart	---; ---; 75, 240	Kröber	1934
<i>PANGONIA</i> <i>basalis</i> (Walker)	---; ---; 53	Strong et al.	1926
<i>inconspicua</i> (Walker)	---; ---; 53	Strong et al.	1926
<i>melanopus</i> Hine	---; ---; 204	Hine	1920 a
<i>parishi</i> Hine	---; ---; 99	Hine	1920 a
<i>prosiniventris</i> Macquart	---; common; 237	Dunn	1934
<i>translucens</i> Macquart	---; ---; 99, 128, 237, 238	Hine	1920 a

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>PELECONHYNCHUS</i>			
<i>biguttatus</i> (Phillipi)	---; ---; 75	Mackerras & Fuller	1942
<i>elegans</i> (Phillipi)	---; ---; 75	Mackerras & Fuller	1942
<i>kröberi</i> (Lindner)	---; ---; 75	Mackerras & Fuller	1942
<i>longicaudus</i> (Bigot)	---; ---; 75	Mackerras & Fuller	1942
<i>vulpes</i> (Macquart)	---; ---; 75	Mackerras & Fuller	1942
<i>xanthopleurus</i> (Phillipi)	---; ---; 75	Mackerras & Fuller	1942
<i>PHAEOTABANUS</i>			
<i>aphanipterus</i> Wiedemann	---; ---; 53	Lutz & Neiva	1914
<i>litigiosus</i> Walker	---; ---; 53	Lutz & Neiva	1914
<i>PHYRTA</i>			
<i>speciosa</i> Kröber	---; ---; 53	Kröber	1934
<i>PITYOCERA</i>			
<i>festae</i> Giglio-Tos	---; July-October; 237	Fairchild	1942
<i>POECILOSONIA</i>			
<i>punctipenne</i> Macquart	---; ---; 53	Lutz & Neiva	1914
<i>POECILOSONIA</i>			
<i>quadripunctatum</i> Fabricius	---; ---; 53	Lutz & Neiva	1914
<i>PROTODASYNAPHA</i>			
<i>hirtuosa</i> Phillipi	---; ---; 75	Kröber	1934
<i>lugens</i> Philippi	---; ---; 75	Kröber	1934
<i>tristis</i> Bigot	---; ---; 75	Kröber	1934
<i>PROTOSILVIUS</i>			
<i>termitiformis</i> Enderlein	---; ---; 53	Kröber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>PSALIDIA</i>	---; ---; 237	Fairchild	1942
<i>fulminea</i>			
Hine	---; ---; 238	Kröber	1932 a
<i>furcata</i>	---; ---; 53	Kröber	1934
Wiedemann			
<i>ocellata</i>	---; ---; 69, 82, 204, 328	Kröber	1934
Enderlein	---; ---; 137, 138, 238	Kröber	1932 a
	---; in forest and jungle; 223°	Woke	1947
<i>PSEUDELAPELLA</i>			
<i>nana</i>	---; ---; 53	Kröber	1934
Walker			
<i>patellicornis</i>	---; ---; 53	Kröber	1934
Kröber			
<i>PSEUDOCANTHOCERA</i>			
<i>brevicornis</i>	---; ---; 51, 82, 239	Kröber	1934
Enderlein			
<i>marginata</i>	---; ---; 53	Lutz & Neiva	1914
Macquart			
<i>opaca</i>	---; ---; 27	Kröber	1934
Bräthes			
<i>parallelifrons</i>	---; ---; 53	Kröber	1934
Kröber			
<i>sylveirii</i>	---; Feb.-April; 53	Lutz & Neiva	1914
Macquart			
<i>PSEUDOMELPIA</i>			
<i>horrors</i>	---; ---; 75	Kröber	1934
Enderlein			
<i>RHABDOTYLUS</i>			
<i>planiventris</i>	---; ---; 53	Lutz & Neiva	1914
Wiedemann			
<i>RHABDOTYLUS</i>			
<i>venenatus</i>	---; Aug.; 328	Stone	1944
Osten Sacken			
<i>viridiventris</i>	---; ---; 53	Lutz & Neiva	1914
Macquart			
<i>RHAMPHIDOMMIA</i>			
<i>elongata</i>	---; ---; 51, 240	Kröber	1934
Macquart			

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>RHAMPHIDONMIA</i>			
<i>muscosa</i> Enderlein	---; ---; 53	Kröber	1934
<i>nigra</i> Kröber	---; ---; 53	Kröber	1934
<i>RICARDOA</i>			
<i>flavohirta</i> Bellardi	---; ---; 204	Kröber	1934
<i>incerta</i> Bellardi	---; ---; 204	Kröber	1934
<i>nigronotata</i> Macquart	---; ---; 204	Kröber	1934
<i>saussurei</i> Bellardi	---; ---; 204	Kröber	1934
<i>semiflava</i> Wiedemann	---; ---; 204	Kröber	1934
<i>seminuda</i> Coquillett	---; ---; 204	Kröber	1934
<i>wiedemanni</i> Bellardi	---; ---; 204	Kröber	1934
<i>SCAPACIS</i>			
<i>fidenodes</i> Enderlein	---; ---; 204	Kröber	1934
<i>SCAPTIODES</i>			
<i>nigerrima</i> Enderlein	---; ---; 75	Kröber	1934
<i>SCEPCIS</i>			
<i>nivalis</i> Walker	---; ---; 53	Kröber	1934
<i>SCIONE</i>			
<i>albofasciata</i> Macquart	---; ---; 82	Kröber	1934
<i>albohirta</i> Kröber	---; ---; 240	Kröber	1934
<i>aurea</i> Szilady	---; ---; 85	Szilady	1926
<i>aureopygia</i> Fairchild	---; ---; 237	Fairchild	1943

TABLE 1 - HOUSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>SCIONE</i>	---; ---; 69, 328	Krüber	1934
<i>aurulans</i> Wiedemann	---; ---; 82, 128, 137, 138, 204 (Bites man through trousers, stays close to ground)	Bequaert	1931
<i>brevistriga</i> Enderlein	---; ---; 99, 240	Krüber	1934
<i>cingulata</i> Enderlein	---; ---; 240	Krüber	1934
<i>cingulata</i> var. <i>scionina</i> Enderlein	---; ---; 240	Krüber	1934
<i>claripennis</i> Ricardo	---; ---; 51, 99, 237, 240	Krüber	1934
<i>costaricana</i> Szilady	---; ---; 51, 85, 99	Krüber	1934
<i>crassa</i> Szilady	---; ---; 240	Krüber	1934
<i>distincta</i> (Schiner)	---; ---; 82	Krüber	1930
	---; ---; 99	Krüber	1934
	---; Aug.-Sept.; 328	Stone	1944
<i>equatorialis</i> Surcouf	---; ---; 99	Krüber	1934
<i>flavescens</i> Enderlein	---; ---; 82, 99	Krüber	1934
<i>flavohirta</i> Ricardo	---; ---; 51	Krüber	1934
<i>fulva</i> Ricardo	---; ---; 27, 51	Krüber	1934
	---; ---; 240	Krüber	1930
<i>fumipennis</i> Krüber	---; ---; 51, 240	Krüber	1934
<i>fusca</i> Ricardo	---; ---; 51, 240	Krüber	1934
<i>huancabambae</i> Krüber	---; ---; 240	Krüber	1934
<i>immaculata</i> Krüber	---; ---; 328	Krüber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>SCIONE</i>			
<i>incompleta</i> Macquart	---; ---; 82, 240	Kröber	1934
<i>limbativena</i> Enderlein	---; ---; 51, 53	Kröber	1934
<i>maculipennis</i> Schiner	---; ---; 82, 99, 204, 240, 328 ---; ---; 237	Kröber Fairchild	1930 1943
<i>minor</i> Macquart	---; ---; 328	Kröber	1934
<i>minuta</i> Szilady	---; ---; 82	Kröber	1934
<i>misera</i> Osten Sacken	---; ---; 128, 204, 240	Kröber	1934
<i>nigripes</i> Kröber	---; ---; 82	Kröber	1934
<i>obscurifemorata</i> Kröber	---; ---; 82, 99, 240	Kröber	1934
<i>picta</i> Szilady	---; ---; 51	Kröber	1934
<i>punctata</i> Szilady	---; ---; 82	Kröber	1934
<i>rufescens</i> Ricardo	---; ---; 51, 53, 82, 240	Kröber	1934
<i>rufipes</i> Kröber	---; ---; 328	Kröber	1934
<i>strigata</i> Enderlein	---; ---; 99	Kröber	1934
<i>SELASOMA</i>			
<i>giganteum</i> Lutz	---; Dec.; 53, 240	Lutz	1913
<i>nigrocaeruleum</i> Rondani	---; ---; 328	Kröber	1934
<i>tibiale</i> Fabricius	---; ---; 27 ---; May; 53. ---; ---; 328 ---; attracted to artificial light, rare; 129 ---; ---; 237 ---; ---; 329, 352	Kröber Lutz Cleare Fairchild Bequaert	1934 1913 1919 1943 1940

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>SPHECIOGASTER</i> <i>albomarginatus</i> Kröber	---; ---; 82	Kröber	1934
<i>anacanthus</i> Lutz & Meiva	---; ---; 53	Kröber	1934
<i>coarctatus</i> Wiedemann	---; ---; 53	Kröber	1934
<i>STENOTABANUS</i> <i>brunnipennis</i> Kröber	---; ---; 325	Kröber	1934
<i>brunnipes</i> Kröber	---; ---; 53	Kröber	1934
<i>cajennensis</i> (Fabricius)	---; Dec.; 328	Stone	1944
<i>calvitus</i> Fairchild	---; ---; 237	Fairchild	1943
<i>changuinola</i> Fairchild	---; ---; 237	Fairchild	1943
<i>comitans</i> Wiedemann	---; ---; 53 ---; ---; 328	Kröber Pechuman	1934 1942
<i>constabulorum</i> Fairchild	---; ---; 237	Fairchild	1943
<i>flavus</i> (Hine)	---; ---; 204	Philip	1947
<i>fulvistriatus</i> Fairchild	---; ---; 237	Fairchild	1943
<i>fumipennis</i> Kröber	---; ---; 53	Kröber	1934
<i>incipiens</i> Walker	---; ---; 53	Kröber	1934
<i>ixyostactes</i> Wiedemann	---; ---; 53	Kröber	1934
<i>jaoulator</i> Fairchild	---; ---; 237	Fairchild	1943
<i>lerida</i> Fairchild	---; ---; 237	Fairchild	1943
<i>littoreus</i> (Hine)	---; Jan.; 328	Stone	1944

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>STENOTABANUS</i>	---; ---; 137	James	1950
<i>longipennis</i>	---		
Kröber	---; ---; 234	Fairchild	1943
	---; ---; 328	Kröber	1934
<i>maculifrons</i>	---		
Hine	---; ---; 237	Fairchild	1943
<i>minusculus</i>	---		
(Kröber)	---; ---; 237	Fairchild	1943
<i>neivai</i>	---		
Borgmeier	---; ---; 53	Kröber	1934
<i>obscuremarginatus</i>	---		
Kröber	---; ---; 53	Kröber	1934
<i>obscurus</i>	---		
Kröber	---; ---; 328	Kröber	1934
<i>obscurus</i>	---		
var. <i>flavofemoratus</i>	---; ---; 240	Kröber	1934
Kröber			
<i>paitillensis</i>	---		
Fairchild	---; ---; 237	Fairchild	1943
<i>pallidicornis</i>	---		
Kröber	---; ---; 51	Kröber	1934
<i>pallipes</i>	---		
Kröber	---; ---; 53	Kröber	1934
<i>paqueniensis</i>	---		
Fairchild	---; ---; 237	Fairchild	1943
<i>peruviansis</i>	---		
Kröber	---; ---; 240	Kröber	1934
<i>plenus</i>	---		
Hine	---; ---; 237	Fairchild	1943
<i>pseudotaeniotes</i>	---		
Kröber	---; ---; 53	Kröber	1934
<i>pseudotaeniotes</i>	---		
var. <i>brevistylatus</i>	---; ---; 53	Kröber	1934
Kröber			
<i>pubotipennis</i>	---		
Brunetti	---; ---; 18	Kröber	1934
	---; ---; 22	Wolcott	1936
<i>quinquestriatus</i>	---		
Kröber	---; ---; 53	Kröber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>STENOTABANUS</i>			
<i>sesannulatus</i> Enderlein	---; ---; 51, 53, 240	Krüber	1934
<i>stigma</i> Krüber	---; ---; 53	Krüber	1934
<i>taeniotes</i> Wiedemann	---; ---; 53, 204	Krüber	1934
<i>STIBASOMA</i>			
<i>aploimaoulata</i> Fairchild	---; ---; 237	Fairchild	1943
<i>aureoguttatum</i> Krüber	---; ---; 53	Krüber	1934
<i>bicolor</i> Bigot	---; ---; 53	Knab	1913
<i>chionoetigma</i> (Osten Sacken)	---; ---; 237	Fairchild	1943
<i>dives</i> Walker	---; ---; 53	Knab	1913
<i>dyridophorum</i> Knab	---; ---; 329	Krüber	1934
<i>fensetratum</i> Macquart	---; ---; 27	Lutz et al.	1918
	---; ---; 53	Krüber	1934
<i>festum</i> Wiedemann	---; ---; 53	Krüber	1934
<i>flavistigma</i> Rine	---; ---; 85, 204, 237	Krüber	1934
<i>flaviventris</i> Macquart	---; Feb.; 53	Lutz	1915
<i>fulviventris</i> Krüber	---; ---; 53	Krüber	1934
	---; ---; 328	Pechuman	1942
<i>fulvohirtum</i> (Wiedemann)	---; Dec.; 53	Lutz	1915
	---; ---; 82, 237, 328, 329	Krüber	1934
	---; ---; 352	Bequaert	1940
<i>fulvohirtum</i> v. <i>dives</i> Walker	---; ---; 53, 327	Krüber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>STIBASOMA</i>	---; ---; 53	Kröber	1934
<i>mallophoroides</i> Walker	---; ---; 329, 352	Bequaert	1940
<i>ornatipennis</i> Kröber	---; ---; 99	Kröber	1934
<i>pachycephalum</i> Bigot	---; ---; 128, 204	Kröber	1934
	---; ---; 237	Knab	1913
<i>semiflavum</i> Lutz	---; ---; 53	Kröber	1934
<i>sulfurotaeniatum</i> Kröber	---; ---; 53	Kröber	1934
<i>theotaenia</i> Wiedemann	---; ---; 27, 325, 328	Kröber	1934
	---; Dec.; 53	Lutz	1915
<i>theotaenia</i> <i>panamensis</i> Curran	---; ---; 237	Fairchild	1943
<i>tristis</i> Wiedemann	---; ---; 53	Kröber	1934
	---; ---; 328	Pechuman	1942
<i>venenata</i> Osten Sacken	---; ---; 237	Fairchild	1943
<i>willistoni</i> Lutz	---; ---; 51, 53	Kröber	1934
<i>STICTOTABANUS</i>			
<i>anonymus</i> Lutz & Meiva	---; ---; 53	Lutz & Meiva	1914
<i>maculipennis</i> (Macquart)	---; ---; 53	Lutz & Meiva	1914
<i>STIGMATOPHTHALMUS</i>			
<i>altivagus</i> Lutz	---; at 300-2150 meters elevation, Dec. and April; 53	Lutz	1913
<i>lutei</i> Surcouf	---; ---; 64	Surcouf	1923
<i>STYFOCNELA</i>			
<i>bogetana</i> Enderlein	---; ---; 82	Kröber	1934
<i>STYPOCNELA</i>			
<i>anachoreta</i> Philippi	---; ---; 75	Kröber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>STYPOMMIA</i> <i>boliviensis</i> Kröber	---; ---; 51, 239	Kröber	1934
<i>carbo</i> Macquart	---; ---; 75	Kröber	1934
<i>flavescens</i> Kröber	---; ---; 240	Kröber	1934
<i>hypographa</i> Kröber	---; ---, 240, 328	Kröber	1934
<i>hypographa</i> var. <i>ruficornis</i> Kröber	---; ---; 352	Kröber	1934
<i>maculipennis</i> Kröber	---; ---; 51	Kröber	1934
<i>melanostoma</i> Philippi	---; ---; 75	Kröber	1934
<i>paraguayensis</i> Kröber	---; ---; 239	Kröber	1934
<i>patagonica</i> Enderlein	---; ---; 27	Kröber	1929 c
<i>trita</i> Walker	---; ---; 27	Kröber	1934
<i>venosa</i> Rigot	---; ---; 51, 53, 240	Kröber	1934
<i>STYPOMMISA</i> <i>affinis</i> Kröber	---; ---; 53	Kröber	1934
<i>fulviventris</i> Macquart	---; ---; 53	Kröber	1934
<i>maculinarvis</i> Macquart	---; ---; 352	Kröber	1934
<i>maculipennis</i> Kröber	---; ---; 51	Kröber	1929 c
<i>punctipennis</i> Enderlein	---; ---; 53	Kröber	1934
<i>STYPOSELAGA</i> <i>punctipennis</i> Brunetti	---; ---; 18	Szilady	1926

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>SYLVIVUS</i> <i>punctipennis</i> Brunetti	---; ---; 18	Brunetti	1923
<i>SZILADYA</i> <i>punctulipennis</i> Enderlein	---; ---; 53	Kröber	1929 c
<i>SZILADYNUS</i> <i>acutidens</i> Philippi	---; ---; 75	Kröber	1934
<i>albovittatus</i> Kröber	---; ---; 75	Kröber	1934
<i>inornatus</i> Philippi	---; ---; 75	Kröber	1934
<i>lasiophthalmus</i> Macquart	---; ---; 69	Kröber	1934
<i>scutulatus</i> Kröber	---; ---; 75	Kröber	1934
<i>shanonni</i> Kröber	---; ---; 27	Kröber	1934
<i>TABANUS</i> <i>acer</i> Brèthes	---; ---; 27, 53, 239	Kröber	1934
<i>adjunctus</i> Kröber	---; ---; 75	Kröber	1934
<i>adornatus</i> Kröber	---; ---; 240	Kröber	1934
<i>albescens</i> Kröber	---; ---; 27	Kröber	1934
<i>albipalpis</i> Rondani	---; ---; 27	Kröber	1934
<i>albo-ater</i> Walker	---; ---; 53	Kumm & Novis	1938
<i>albocirculus</i> Hine	---; ---; 85	Kröber	1934
	---; ---; 223	Woke	1947
	---; ---; 237	Fairchild	1943
	---; ---; 328	Stone	1944
<i>albohirtus</i> Walker	---; ---; 27	Kröber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TABANUS</i>			
<i>albomaculatus</i> Walker	---; ---; 53	Strong et al.	1926
<i>albonotatus</i> Bellardi	---; ---; 138	Bequaert	1925
<i>albopruinosus</i> Kröber	---; ---; 53	Kröber	1934
<i>albosignatus</i> Kröber	---; ---; 27	Kröber	1934
<i>albotibialis</i> Kröber	---; ---; 240	Kröber	1934
<i>albovarius</i> Walker	---; ---; 53	Strong et al.	1926
<i>albovillosus</i> Kröber	---; ---; 85	Kröber	1934
<i>alene</i> Townsend	---; ---; 21	Gowdey	1926
<i>alteripennis</i> Walker	---; ---; 85, 204	Kröber	1934
<i>alticola</i> Enderlein	---; ---; 27	Kröber	1934
<i>americanus</i> Forster	---; ---; 17	Stone	1938
<i>amplifrons</i> Kröber	---; ---; 237	Fairchild	1943
	---; Apr.; 328	Stone	1944
<i>angustifrons</i> Macquart	---; ---; 130	Kröber	1934
<i>angustivitta</i> Kröber	---; ---; 237	Fairchild	1943
<i>angustus</i> Macquart	---; ---; 27, 53	Lutz et al.	1918
	---; ---; 325	Kröber	1934
<i>aphanopterus</i> Wiedemann	---; ---; 53	Kröber	1934
<i>aphanopterus</i> var. <i>obscuripilis</i> Kröber	---; ---; 129	Kröber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TABANUS</i>			
<i>apicalis</i> Wiedemann	---; ---; 53	Kröber	1934
<i>apocritus</i> Schiner	---; ---; 75	Kröber	1934
<i>appendiculatus</i> Hine	---; ---; 51	Kröber	1929 a
	---; ---; 53, 128, 129, 137, 138	Strong et al.	1925
<i>appretiatu</i> Kröber	---; ---; 85, 204	Kröber	1934
<i>argentinus</i> Brèthes	---; ---; 27, 53	Kröber	1934
<i>atlanticus</i> (Johnson)	---; ---; 48	Bequaert	1940
<i>atratus</i> Fabricius	---; ---; 204	Philip	1947
	---; ---; 352	Kröber	1934
<i>attenuatus</i> Walker	---; ---; 352	Kröber	1934
<i>augustifrons</i> Townsend	---; ---; 21	Gowdey	1926
<i>aurora</i> Macquart	---; attracted by light; 27, 53	Strong et al.	1926
<i>austeni</i> Kröber	---; ---; 53, 240	Kröber	1934
<i>badicolor</i> Kröber	---; ---; 27	Kröber	1934
<i>basilaris</i> Kröber	---; ---; 53	Kröber	1934
<i>basivitta</i> Walker	---; ---; 53	Kröber	1934
<i>batesi</i> Bequaert	---; ---; 20	Bequaert	1940
<i>bellardi</i> Szilady	---; ---; 18	Kröber	1934
<i>bellicosus</i> Brèthes	---; ---; 27	Kröber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TABANUS</i>			
<i>bellus</i> Kröber	---; ---; 53	Kröber	1934
<i>bifloccus</i> Hine	---; ---; 18, 19	Kröber	1934
<i>bigoti</i> Bellardi	---; ---; 137	James	1950
	---; ---; 237	Fairchild	1943
<i>bitinotus</i> Walker	---; ---; 53	Kröber	1934
<i>bivittatus</i> Macquart	---; ---; 53	Lutz	1913
<i>bonariensis</i> Macquart	---; ---; 53, 325	Lutz et al.	1918
	---; ---; 75	Kröber	1934
<i>brevifrons</i> Kröber	---; ---; 53	Kröber	1934
<i>brevitrianguliferus</i> Kröber	---; ---; 53	Kröber	1934
	---; ---; 328	Kröber	1931 a
<i>bruesi</i> Hine	---; ---; 240	Kröber	1934
	---; July; 240	Hine	1920
<i>brunettii</i> Bequaert	---; common; 18°. ---; ---; 19, 20, 22, 346°	Bequaert	1940
<i>caesiamaoulatus</i> Kröber	---; ---; 240	Kröber	1934
<i>cajennensis</i> Fabricius	---; Sept.; 53, 347	Strong et al.	1926
	---; coastlands; 129°	Cleare	1919
	---; ---; 297	Kröber	1929 b
	---; ---; 328	Pechuman	1942
	---; ---; 352	Kröber	1934
<i>calignosus</i> Bellardi	---; ---; 237	Dunn	1934
<i>callioera</i> Bigot	---; ---; 53	Kröber	1934
<i>callosus</i> Macquart	---; ---; 53, 297	Kröber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TABANUS</i>			
<i>callosus</i>			
var. <i>brunniiventris</i>	---; ---; 53, 347	Kröber	1934
Kröber			
<i>campechianus</i>	---; ---; 204	Bequaert	1931
Townsend			
<i>campestris</i>	---; ---; 325	Kröber	1934
Brèthes			
<i>canicolor</i>	---; ---; 27, 75	Kröber	1934
Kröber			
<i>canipilis</i>	---; ---; 27	Kröber	1934
Kröber			
<i>captiropterus</i>	---; ---; 328	Kröber	1934
Kröber			
<i>caribaeorum</i>	---; ---; 17, 21, 22	Bequaert	1940
Bequaert			
<i>carneus</i>	---; ---; 53, 204	Kröber	1934
Bellardi			
	---; ---; 137	Bequaert	1925
	---; ---; 328	Pechuman	1942
<i>carneus</i>			
var. <i>appendiculatus</i>	---; ---; 53, 204	Kröber	1934
Hine			
<i>castaneus</i>	---; ---; 130	Kröber	1931 c
Macquart			
<i>cayennensis</i>	---; ---; 53	Neiva & Penna	1916
Wiedemann			
<i>cervinus</i>	---; ---; 53	Kröber	1934
Kröber			
<i>chilensis</i>	---; ---; 75	Kröber	1934
Macquart			
<i>chrysoleucus</i>	---; ---; 53	Strong et al.	1926
Walker			
<i>chrysothrix</i>	---; ---; 237	Fairchild	1941
Fairchild			
<i>cineus</i>	---; ---; 51, 352	Kröber	1934
Wiedemann			
	---; ---; 53	Neiva & Penna	1916
<i>cingulifer</i>	---; ---; 53	Strong et al.	1926
Walker			
<i>circariensis</i>	---; ---; 75	Kröber	1934
Kröber			

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATE RECORDS)	AUTHOR	DATE
<i>TABANUS</i>			
<i>clarus</i> Schiner	---; ---; 352	Krüber	1934
<i>clausenii</i> Hine	---; ---; 137	Krüber	1934
<i>olenohi</i> Bequaert	---; ---; 19, 20	Bequaert	1940
<i>colitaeensis</i> Krüber	---; ---; 204	Krüber	1934
<i>columbianus</i> Enderlein	---; ---; 82, 99, 204, 240, 328	Krüber	1934
<i>communis</i> Krüber	---; ---; 297	Krüber	1934
<i>comosus</i> Stone	---; March; 328	Stone	1944
<i>conyiniis</i> Walker	---; ---; 352	Krüber	1934
<i>confirmatus</i> Brèthes	---; ---; 27, 53	Krüber	1934
<i>confligens</i> Walker	---; ---; 52	Strong et al.	1926
<i>consequa</i> Walker	---; ---; 53	Krüber	1934
<i>corone</i> Osten Sacken	---; ---; 128	Krüber	1934
<i>costaricensis</i> Krüber	---; ---; 85	Krüber	1934
<i>crabellus</i> Osten Sacken	---; ---; 204	Krüber	1934
<i>craton</i> Krüber	---; ---; 82	Krüber	1934
<i>cubanus</i> Sallady	---; ---; 18	Krüber	1934
<i>curticornis</i> Krüber	---; ---; 325	Krüber	1934
<i>curtus</i> Hine	---; Jan.-Feb.; 328	Stone	1944

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TABANUS</i>			
<i>darlingtoni</i> Bequaert	---; ---; 19, 20, 346°	Bequaert	1940
<i>decoloratus</i> Kröber	---; ---; 240	Kröber	1934
<i>defilippii</i> Bellardi	---; ---; 95, 204	Kröber	1934
	---; forest; 137	Bequaert	1925
	---; ---; 237	Fairchild	1943
<i>desertus</i> Walker	---; occasionally attracted to artificial light, coastlands; 129	Clearc	1919
	---; ---; 328	Pechuman	1942
<i>despectus</i> Kröber	---; ---; 75	Kröber	1934
<i>detersus</i> Walker	---; ---; 82	Kröber	1934
<i>disceifer</i> Bigot	---; ---; 53	Kröber	1934
<i>diacus</i> Wiedemann	---; Dec.; 328	Stone	1945
<i>distinctus</i> Bräthes	---; ---; 27	Kröber	1934
<i>divaricatus</i> Kröber	---; ---; 75	Kröber	1934
<i>dominicanus</i> Kröber	---; ---; 24	Bequaert	1940
	---; ---; 91	Kröber	1934
<i>dorsifer</i> Walker	---; ---; 204	Philip	1947
<i>dorsifloccus</i> Szilady	---; ---; 18	Bequaert	1940
<i>dorsiger</i> Wiedemann	---; ---; 53, 297, 325	Kröber	1934
<i>dorsiger</i> var. <i>angustivitta</i> Kröber	---; ---; 53	Kröber	1934
	---; ---; 328	Ballou	1945

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TABANUS</i>			
<i>dorsiger</i>			
var. <i>longipilosus</i> Kröber	---; ---; 53	Kröber	1934
<i>dorsiger</i>			
var. <i>pallidefemoratus</i> Kröber	---; ---; 53, 137, 240	Kröber	1934
<i>druyvesteijni</i> Szilady	---; ---; 27, 51, 237, 239, 297, 328, 329	Kröber	1934
<i>dunni</i> Fairchild	---; ---; 237	Fairchild	1943
<i>ebrius</i> Osten Sacken	---; ---; 85, 237	Kröber	1934
<i>ecuadoriensis</i> Kröber	---; ---; 99	Kröber	1934
<i>elviae</i> Fairchild	---; ---; 237	Fairchild	1943
<i>enanus</i> Fairchild	---; ---; 237	Fairchild	1943
<i>erebus</i> Osten Sacken	---; ---; 223, 237	Kröber	1931c
<i>erythraeus</i> (Bigot)	---; ---; 204	Philip	1947
<i>erythrocerus</i> Kröber	---; ---; 27, 53, 325	Kröber	1931a
<i>eutaeniatus</i> Bigot	---; ---; 53	Kröber	1934
<i>fascipennis</i> Macquart	---; ---; 53	Kröber	1934
	---; May, Aug.; 328	Stone	1944
<i>femorale</i> Kröber	---; ---; 128	Kröber	1934
<i>fenustra</i> Williston	---; ---; 19	Bequaert	1940
	---; ---; 85, 91	Kröber	1934
<i>ferrifer</i> Walker	---; ---; 24, 237	Kröber	1934
	---; in houses, on screen in evening, Dec.; 82	Dunn	1929
	---; Dec., Jan.; 328	Stone	1944

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TABANUS</i>			
<i>ferruginosus</i> Walker	---; ---; 53	Kröber	1934
<i>festivus</i> Hine	---; ---; 85, 238	Hine	1920
	---; ---; 237	Dunn	1934
<i>flavibarbis</i> Macquart	---; Sept.; 53	Strong et al.	1926
	---; ---; 130, 240	Kröber	1934
<i>flavifrons</i> Szilady	---; ---; 18	Kröber	1934
<i>flavinotum</i> Kröber	---; ---; 53	Kröber	1934
<i>flavostriatus</i> Kröber	---; ---; 27	Kröber	1934
<i>flocculus</i> Bequaert	---; ---; 19, 20	Bequaert	1940
<i>frater</i> Kröber	---; ---; 53	Kröber	1934
<i>frequens</i> Kröber	---; ---; 240	Kröber	1934
<i>frontosus</i> Kröber	---; ---; 325	Kröber	1934
<i>fulmineus</i> Hine	---; July; 238	Hine	1920
<i>fulvipes</i> Philippi	---; ---; 240	Escomel	1924
<i>fulvistriatus</i> Hine	---; ---; 204	Kröber	1934
<i>fuscatipennis</i> Kröber	---; ---; 53, 240	Kröber	1934
	---; ---; 237	Fairchild	1943
<i>fuscomarginatus</i> Hine	---; ---; 51, 85, 237	Kröber	1934
<i>fur</i> Williston	---; ---; 137	Root	1924
<i>furvus</i> Hine	---; ---; 51	Hine	1920

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TABANUS</i>			
<i>fuscipennis</i> Wiedemann	---; ---; 53	Kröber	1934
<i>fuscifasciatus</i> Macquart	---; ---; 27, 239, 325 ---; ---; 53	Lutz et al. Meiva & Fenna	1918 1916
<i>fuscus</i> Thunberg	---; ---; 239	Lutz et al.	1918
<i>gilanus</i> Townsend	---; ---; 204	Kröber	1934
<i>globulicollis</i> Kröber	---; ---; 237	Kröber	1934
<i>gracilicornis</i> Hine	---; ---; 17, 18, 91	Bequaert	1940
<i>gracilicornis</i> <i>insulicola</i> Bequaert	---; ---; 17, 18	Bequaert	1940
<i>grandis</i> Kröber	---; ---; 51	Kröber	1934
<i>griseopleuris</i> Kröber	---; ---; 85	Kröber	1934
<i>guatemalanus</i> Hine	---; ---; 128, 237	Kröber	1934
<i>guttigaster</i> Kröber	---; ---; 53 ---; ---; 329, 352	Kröber Bequaert	1934 1940
<i>guttiventris</i> Kröber	---; ---; 352	Kröber	1929
<i>habilis</i> Bräthes	---; ---; 27	Kröber	1934
<i>haemagogus</i> Williston	---; June-July, resting at edges of woods; 204 ---; ---; 204	Bequaert Kröber	1931 1934
<i>haitiensis</i> Kröber	---; ---; 20 ---; ---; 91	Kröber Bequaert	1934 1940
<i>hilaris</i> Macquart	---; ---; 27	Lutz et al.	1918
<i>hirtitibia</i> Walker	---; ---; 82	Kröber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TABANUS</i>			
<i>hispaniolae</i> Bequaert	---; ---; 19	Bequaert	1940
<i>histrio</i> Wiedemann	---; ---; 53	Kröber	1934
<i>hookeri</i> Knab	---; ---; 18, 20, 21, 23, 24, 27, 53, 82, 129, 239, 329, 346°, 352	Bequaert	1940
	---; on beach; 22	Wolcott	1941
	---; July; 328	Stone	1944
<i>hyalinus</i> Kröber	---; ---; 53	Kröber	1934
<i>imponens</i> Walker	---; ---; 53, 82, 297, 328	Kröber	1934
	---; coastlands, rare; 129	Cleare	1919
<i>importunus</i> Wiedemann	---; July and Sept., active all day, occasionally bites man; 53°	Strong et al.	1926
	---; ---; 53, 130, 240	Kröber	1934
	---; ---; 82	Patino- Camargo	1940
	---; ---; 237	Fairchild	1943
	---; ---; 239, 297	Fischer	1933
	---; ---; 328	Pechuman	1942
<i>impressus</i> Wiedemann	---; rare; 129°	Cleare	1919
<i>inanis</i> Fabricius	---; ---; 53, 129, 130, 239	Strong et al.	1926
	---; ---; 204	Kröber	1934
	---; ---; 237	Dunn	1934
<i>inscriptus</i> Walker	---; ---; 53	Strong et al.	1926
<i>indecius</i> Bigot	---; ---; 53	Kröber	1934
<i>infuscostipennis</i>	---; ---; 82	Patino- Camargo	1940
<i>innotescens</i> Walker	---; ---; 53	Kröber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TABANUS</i>			
<i>interpositus</i> Rondani	---; ---; 27	Kröber	1934
<i>interpunctus</i> Lutz	---; ---; 239	Lutz et al.	1918
<i>itzarum</i> Bequaert	---; June and July, in bush; 204	Bequaert	1931
<i>jamaicensis</i> (Newstead)	---; ---; 21, 346°	Bequaert	1940
<i>jilamensis</i> Hine	---; ---; 137	Kröber	1934
<i>laoajaensis</i> Kröber	---; ---; 85	Kröber	1934
<i>laevicallus</i> Skilady	---; on leaf of low bush, near sea shore, April; 18	Bequaert	1940
<i>latus</i> Hine	---; at an altitude of 7,300 feet; 240	Hine	1920
<i>leucaspis</i> Wiedemann	---; ---; 27, 53, 129, 137, 237, 239	Strong et al.	1926
	---; ---; 82	Patino- Camargo	1940
	---; rare in forest; 129°	Cleare	1919
	---; ---; 138, 240. ---; June, in bush, on tree trunks; 204	Bequaert	1931
	---; ---; 328	Martorell	1939
	---; ---; 329, 352	Bequaert	1940
<i>limbativena</i> Kröber	---; ---; 240	Kröber	1934
<i>limpidipes</i> Wiedemann	---; ---; 53, 240	Kröber	1934
<i>lincleri</i> Kröber	---; ---; 27	Kröber	1929 a
	---; ---; 51, 325	Kröber	1931 f
<i>linola</i> Fabricius	---; ---; 17, 18, 21, 69, 137, 329, 352	Bequaert	1940
	---; ---; 27, 51, 53, 240	Kröber	1934
	---; ---; 116	Johnson	1924

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TABANUS</i>	---; ---; 138	Bequaert	1925
<i>lineola</i>			
<i>Fabricius</i>	---; ---; 237	Fairchild	1943
(cont.)			
	---; ---; 328	Martorell	1939
<i>lineola</i>	---; ---; 137	James	1950
var. <i>carneus</i>			
<i>Bellardi</i>	---; in houses; 223	Woke	1947
	---; ---; 237	Fairchild	1942
	---; Feb., June-Aug., Dec.; 328	Stone	1944
<i>lineola</i>			
<i>lineola</i>	---; ---; 328	Stone	1944
<i>Fabricius</i>			
<i>lineola</i>			
<i>plangens</i>	---; Sept., Dec.; 328	Stone	1944
<i>Walker</i>			
<i>lineola</i>	---; in forest; 223	Woke	1947
var. <i>stenoocephalus</i>			
(Hine)	---; ---; 237	Fairchild	1942
<i>litigiosus</i>	---; ---; 53	Kröber	1934
<i>Walker</i>			
<i>littoreus</i>	---; May, near lights in the evening; 128. ---;	Bequaert	1931
<i>Hine</i>	May; 204		
	---; vicinity of electric lights on board steamer in harbor; 137	Bequaert	1925
<i>lividus</i>	---; ---; 53, 240, 347	Kröber	1934
<i>Walker</i>			
	---; Jan., May; 328	Stone	1944
<i>longiappendiculatus</i>	---; ---; 137	Kröber	1934
<i>Macquart</i>			
<i>longifrons</i>	---; ---; 75	Kröber	1934
<i>Kröber</i>			
<i>lucidulus</i>	---; ---; 21°	Bequaert	1940
<i>Walker</i>			
<i>lucipennis</i>	---; ---; 51	Kröber	1934
<i>Kröber</i>			
<i>luteoflavus</i>	---; ---; 204	Kröber	1934
<i>Bellardi</i>			
	---; ---; 329, 352	Bequaert	1940
<i>lutzi</i>	---; Sept.; 328	Stone	1944
<i>Kröber</i>			

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TABANUS</i>			
<i>maculioeps</i> Kröber	---; ---; 75	Kröber	1934
<i>maculiventris</i> Macquart	---; ---; 75	Kröber	1934
<i>magnificus</i> Kröber	---; ---; 82, 85, 99	Kröber	1934
	---; ---; 237	Fairchild	1943
<i>maleteotus</i> Bigot	---; ---; 53	Kröber	1934
<i>manifestus</i> Walker	---; ---; 352	Kröber	1934
<i>marginatus</i> Macquart	---; ---; 53	Kröber	1934
<i>maya</i> Bequaert	---; ---; 137	Bequaert	1940
	---; June; 204	Bequaert	1931
	---; ---; 237	Fairchild	1943
<i>medius</i> Kröber	---; ---; 85	Kröber	1934
	---; ---; 237	Fairchild	1943
<i>mellifluus</i> Bequaert	---; ---; 18	Bequaert	1940
<i>mendozianus</i> Enderlein	---; ---; 27	Kröber	1934
<i>meridianus</i> Rondani	---; ---; 27, 75	Kröber	1934
<i>merioanus</i> Linnaeus	---; common along river bank, attracted to light; 82	Dunn	1929
	---; ---; 137, 329, 352	Bequaert	1940
	---; crepuscular; 138	Bequaert	1925
	---; ---; 204, 223, 347	Kröber	1934
	---; ---; 328	Pechuman	1942
<i>miles</i> Wiedemann	---; ---; 53, 240	Kröber	1934
<i>minor</i> Macquart	---; ---; 75	Kröber	1934
<i>minoratus</i> Kröber	---; ---; 53	Kröber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TABANUS</i>			
<i>missionum</i> Macquart	---; ---; 27, 325	Lutz et al.	1918
<i>modestes</i> Wiedemann	---; Aug.-Sept.; 53, 85	Strong et al.	1926
<i>modestinus</i> Kröber	---; ---; 75	Kröber	1934
<i>modicus</i> Hine	---; ---; 129	Hine	1920
<i>monochroma</i> Wiedemann	---; ---; 53	Lutz & Priva	1914
	---; ---; 325	Kröber	1934
<i>monogramma</i> Wiedemann	---; ---; 239	Lutz et al.	1918
<i>mordax</i> Hine	---; ---; 239	Hine	1920
<i>monops</i> Bequaert	---; ---; 19	Bequaert	1940
<i>muromctus</i> Lutz & Neiva	---; ---; 53°	Neiva & Penna	1916
<i>multiguttatus</i> Kröber	---; ---; 82	Kröber	1934
<i>murinus</i> Hine	---; ---; 129	Kröber	1934
<i>musoides</i> Hine	---; ---; 51, 128, 239	Kröber	1934
<i>neglectus</i> Kröber	---; ---; 53, 297	Kröber	1931 b
	---; ---; 240	Kröber	1934
<i>neogriseosens</i> Kröber	---; ---; 240	Kröber	1934
<i>neo-innotaeosens</i> Kröber	---; ---; 53	Kröber	1934
<i>neo-vestitus</i> Kröber	---; ---; 53	Kröber	1934
<i>nervus</i> Fairchild	---; ---; 237	Fairchild	1943

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TABANUS</i>			
<i>nervosus</i> Curran	---; on beaches resting on drift or moist sand; 22	Bequaert	1940
<i>niger</i> Enderlein	---; ---; 27, 75	Krüber	1934
<i>nigrofemor</i> Krüber	---; ---; 75	Krüber	1934
<i>nigriflavus</i> Krüber	---; ---; 53	Krüber	1931 b
	---; ---; 130	Krüber	1934
<i>nigripennis</i> Philippi	---; ---; 75	Krüber	1931 c
<i>nigrofemoratus</i> Krüber	---; ---; 51	Krüber	1934
<i>nigropalpis</i> Krüber	---; ---; 53	Krüber	1934
<i>nigrovittatus</i> Macquart	---; ---; 48, 346	Philip	1947
<i>nubeculipennis</i> Krüber	---; ---; 328	Krüber	1934
<i>mutinus</i> Walker	---; ---; 53	Strong et al.	1926
<i>obliquus</i> Walker	---; ---; 21	Gowley	1926
<i>obscurigaster</i> Krüber	---; ---; 82	Krüber	1934
<i>obscuriventris</i> Krüber	---; ---; 27	Krüber	1929 a
	---; ---; 51, 239	Krüber	1934
<i>obsoletus</i> Wiedemann	---; ---; 53	Krüber	1929 b
<i>obscuratus</i> Bequaert	---; ---; 21	Bequaert	1940
<i>occidentalis</i> Linnaeus	---; ---; 53, 75, 247	Krüber	1929 b
	---; in house screens, common along the river, active during midday; 82	Dunn	1929
	---; ---; 204, 239	Krüber	1934
	---; ---; 237	Dunn	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TABANUS</i>	---; common in forest; 82°	Dunn	1929
<i>ocoulatus</i> (Bigot)	---; ---; 82	Patino- Camargo	1940
<i>ocellatus</i> Enderlein	---; ---; 27	Lutz et al.	1918
	---; ---; 137	Bequaert	1940
<i>ocelligerus</i> Krüger	---; ---; 85	Krüger	1934
<i>ochrophilus</i> Lutz	---; ---; 329, 352	Bequaert	1940
<i>oculus</i> Walker	---; ---; 126, 138. ---; May-June; 204	Bequaert	1931
	---; forest; 129°	Cleare	1919
	---; ---; 137	Bequaert	1940
	---; ---; 223	Woke	1947
	---; ---; 237	Fairchild	1943
<i>olivaceiventris</i> Macquart	---; July; 53	Strong et al.	1926
	---; July; 328	Stone	1944
<i>ornatifrons</i> Krüger	---; ---; 75	Krüger	1934
<i>ornatipennis</i> Krüger	---; ---; 240	Krüger	1934
<i>ornatissimus</i> Brèthes	---; ---; 27	Krüger	1934
	---; ---; 325	Lutz et al.	1918
<i>ornatus</i> Krüger	---; ---; 27, 51, 53	Krüger	1929 a
<i>ovalipalpus</i> Enderlein	---; ---; 239	Krüger	1934
<i>paenodes</i> Schiner	---; ---; 75	Krüger	1934
<i>pallidistinctus</i> Krüger	---; ---; 237	Fairchild	1943
<i>pallidulus</i> Krüger	---; ---; 128	Krüger	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TABANUS</i>			
<i>pallipes</i> Kröber	---; ---; 51	Kröber	1934
<i>parallelus</i> Walker	---; ---; 21	Bequaert	1940
<i>parsoni</i> Bequaert	---; July, at 2,000 feet elevation; 18	Bequaert	1940
<i>parvipes</i> Kröber	---; ---; 53	Kröber	1934
<i>parvulus</i> Williston	---; ---; 20, 22	Bequaert	1940
<i>patellioornis</i> Kröber	---; ---; 51	Kröber	1934
<i>pelidnopterus</i> Kröber	---; ---; 27, 325	Kröber	1934
<i>pellucidus</i> Fabricius	---; ---; 352	Kröber	1934
<i>perignatus</i> Kröber	---; ---; 27, 51	Kröber	1934
<i>peruvianus</i> Macquart	---; Sept.; 328	Stone	1944
<i>philippii</i> Bondani	---; ---; 75	Kröber	1934
<i>pioticoornis</i> (Bigot)	---; ---; 20	Bequaert	1940
<i>piotiperentis</i> Macquart	---; ---; 53	Kröber	1931 c
<i>pioturatus</i> Kröber	---; ---; 204, 328	Kröber	1934
<i>pilifer</i> Kröber	---; ---; 75	Kröber	1934
<i>pirntious</i> Fairchild	---; ---; 237	Fairchild	1943
<i>plangens</i> Walker	---; July-Sept.; 53	Strong et al.	1926
	---; ---; 69, 239	Kröber	1934
	---; ---; 82	Patino- Camargo	1940
	---; ---; 328	Pechuman	1942

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TABANUS</i>			
<i>platensis</i> Brèthes	---; ---; 27	Krüber	1934
<i>platyventris</i> Krüber	---; ---; 85	Krüber	1934
<i>praepilatus</i> Fairchild	---; ---; 237	Fairchild	1943
<i>prasiniventris</i> Krüber	---; ---; 53	Krüber	1934
<i>primitivus</i> Walker	---; ---; 352	Krüber	1934
<i>pruinicarpus</i> Krüber	---; ---; 51, 82	Krüber	1934
<i>pruinivitta</i> Krüber	---; ---; 75	Krüber	1934
<i>pruinosa</i> Bigot	---; ---; 204	Philip	1947
<i>pseudocinereus</i> Meiva & Penna	---; ---; 53	Meiva & Penna	1916
<i>pseudoculus</i> Fairchild	---; ---; 237	Fairchild	1943
	---; ---; 328	Stone	1944
<i>pseudosorbilans</i>	---; ---; 239	Lutz et al.	1918
<i>pterographicus</i> Fairchild	---; ---; 237	Fairchild	1943
<i>pubescens</i> Walker	---; ---; 53	Strong et al.	1926
<i>pudens</i> Walker	---; ---; 53	Krüber	1934
<i>pulcher</i> Krüber	---; ---; 27	Krüber	1934
<i>punctifer</i> Osten Sacken	---; ---; 204	Philip	1947
<i>punctipennis</i> Hine	---; ---; 85	Krüber	1934
<i>pumilus</i> Hine	---; Nov.; 240	Hine	1920

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TABANUS</i>			
<i>pungens</i> Wiedemann	---; ---; 325	Kröber	1934
<i>purus</i> Walker	---; ---; 204	Kröber	1934
<i>pueio</i> Kröber	---; ---; 27	Kröber	1934
<i>quadripunctatus</i> Fabricius	---; ---; 27, 53, 85, 128, 129, 204	Kröber	1929 a
	---; occasionally in forest areas; 129°	Cleare	1919
	---; ---; 237	Fairchild	1943
	---; ---; 239	Lutz et al.	1918
	---; ---; 325	Kröber	1934
	---; May, Dec.; 328	Stone	1944
<i>quadripunctatus</i> var. <i>amabilis</i> Walker	---; ---; 27, 51, 53, 85, 99, 204, 240, 325, 328	Kröber	1931 f
	---; ---; 82	Patino- Camargo	1940
<i>ratus</i> Kröber	---; ---; 85	Kröber	1934
<i>reticulatus</i> Kröber	---; ---; 240	Kröber	1934
<i>rhizophorae</i> Fairchild	---; ---; 237	Fairchild	1943
<i>rivator</i> Fairchild	---; ---; 237	Fairchild	1943
<i>robustus</i> Kröber	---; ---; 53, 297	Kröber	1934
<i>rubricornis</i> Kröber	---; ---; 130	Kröber	1934
<i>rubrifrons</i> Blanchard	---; ---; 75	Kröber	1934
<i>rubripes</i> Macquart	---; ---; 130	Kröber	1934
<i>rufo thorax</i> Macquart	---; ---; 53	Neiva & Penna	1916
<i>rubromarginatus</i> Kröber	---; ---; 75	Kröber	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TABANUS</i>			
<i>ruficaudis</i> Kröber	---; ---; 325	Kröber	1934
<i>ruficolor</i> Kröber	---; ---; 99, 328	Kröber	1934
<i>rufipes</i> Macquart	---; ---; 53	Travassos & Freitas	1942
<i>rufiventris</i> Macquart	---; ---; 21	Gowdey	1926
<i>schineri</i> Kröber	---; ---; 53, 240, 328	Kröber	1934
<i>schmidtii</i> Kröber	---; ---; 85	Kröber	1934
<i>sohnusei</i> Kröber	---; ---; 27, 240	Kröber	1934
<i>semiflavus</i> Kröber	---; ---; 53	Kumm & Novis	1938
	---; ---; 328	Kröber	1934
<i>semisordidus</i> Walker	---; ---; 53	Strong et al.	1926
	---; coastland; 129	Cleare	1919
<i>senior</i> Walker	---; ---; 129	Cleare	1919
<i>serenus</i> Kröber	---; ---; 328	Kröber	1934
<i>signativentris</i> Brèthes	---; ---; 27, 53	Kröber	1934
<i>simplex</i> Walker	---; ---; 53	Strong et al.	1926
	---; ---; 82	Bequaert	1940
<i>sordillans</i> Wiedemann	---; ---; 53, 239, 329	Kröber	1934
	---; June-July, Sept.; 328	Stone	1944
	---; ---; 352	Bequaert	1940
<i>stenocephalus</i> Hine	---; ---; 128	Kröber	1934
	---; ---; 237	Gunn	1934

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TABANUS</i>	---; on beach; 22	Wolcott	1941
<i>stigma</i>			
<i>Fabricius</i>	---; ---; 23, 24	Bequaert	1940
	---; ---; 352	Kröber	1934
<i>stigmatioalis</i>	---; ---; 53	Kröber	1934
<i>Kröber</i>			
<i>subruber</i>	---; forest trails; 137°	Bequaert	1925
<i>Bellardi</i>			
<i>subseuer</i>	---; ---; 53	Kröber	1934
<i>Walker</i>			
<i>tacitus</i>	---; ---; 325	Hine	1920
<i>Hine</i>			
<i>taeniola</i>	---; ---; 352°	Bequaert	1940
<i>de Beauvois</i>			
<i>tantulus</i>	---; April; 129	Hine	1920
<i>Hine</i>			
<i>tardiotus</i>	---; ---; 21	Bequaert	1940
<i>Bequaert</i>			
<i>tennifasciatus</i>	---; ---; 240	Kröber	1934
<i>Kröber</i>			
<i>tennistria</i>	---; ---; 53	Kröber	1934
<i>Kröber</i>			
<i>taphrodes</i>	---; ---; 27, 75	Kröber	1934
<i>Philippi</i>			
<i>tervius</i>	---; ---; 53	Kröber	1934
<i>Walker</i>			
<i>testaceomaculatus</i>	---; ---; 75	Kröber	1934
<i>Macquart</i>			
<i>testaceus</i>	---; ---; 53	Kröber	1934
<i>Macquart</i>	---; ---; 328	Martorell	1939
	---; ---; 23	Kröber	1934
<i>tinotus</i>			
<i>Walker</i>			
<i>tiro</i>	---; ---; 53	Lutz & Meive	1914
<i>Lutz & Meive</i>			
<i>townsendi</i>	---; ---; 18, 21	Kröber	1934
<i>Johnson</i>			

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TABANUS</i>			
<i>trianguliferus</i> Enderlein	---; ---; 75	Kröber	1934
<i>trianguliferus</i> val. <i>ochraceus</i> Enderlein	---; ---; 75	Kröber	1934
<i>triangulum</i> Wiedemann	---; ---; 53	Kröber	1934
	---; ---; 239, 325	Lutz et al.	1918
<i>trioeps</i> Thunberg	---; ---; 53	Kröber	1934
<i>trifarius</i> Macquart	---; ---; 75	Kröber	1934
<i>trigonophorus</i> Macquart	---; ---; 27, 325	Lutz et al.	1918
<i>trigonoctonus</i> Lutz	---; ---; 53	Malva & Penna	1916
<i>trijunctus</i> Walker	---; ---; 17	Phillip	1947
<i>trilineatus</i> Latreille	---; ---; 21	Gowdey	1926
	---; ---; 53, 69, 297	Strong et al.	1926
	---; common along river banks; 82	Dunn	1929
	---; common, coastal and forest areas, occasionally attracted to light; 129	Clears	1919
	---; ---; 328	Ortiz	1944
	---; ---; 529, 352	Bequaert	1940
<i>trivittatus</i> Fabricius	---; ---; 53, 83, 325	Strong et al.	1926
	---; ---; 129	Hine	1920
<i>trisonophthalmus</i>	---; ---; 239	Lutz et al.	1918
<i>truxalis</i> Bellardi	---; ---; 21, 22, 82, 116, 128, 137, 237, 329, 346*	Bequaert	1940
	---; ---; 138, 204	Kröber	1929
<i>umbraeoculus</i> Fairchild	---; ---; 237	Fairchild	1943

TABLE 1 - HORSE FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TABANUS</i>			
<i>umbratus</i> Hine	---; ---; 85	Kröber	1931 c
<i>unicinctus</i> Walker	---; ---; 53	Strong et al.	1926
<i>unicolor</i> Wiedemann	---; ---; 53	Strong et al.	1926
	---; ---; 329	Bequaert	1940
<i>unimacula</i> Kröber	---; ---; 297	Kröber	1934
<i>unipunctatus</i> Bigot	---; ---; 130, 297	Kröber	1934
<i>unistriatus</i> Hine	---; ---; 85	Kröber	1934
	---; ---; 137	Bequaert	1940
	---; ---; 223	Woke	1947
	---; ---; 237*	Dunn	1934
	---; ---; 237	Fairchild	1943
<i>univittatus</i> Macquart	---; ---; 53	Strong et al.	1926
<i>uruguayanus</i> Kröber	---; ---; 53, 325	Kröber	1934
<i>validus</i> Hine	---; ---; 85	Kröber	1931 c
<i>valterii</i> Macquart	---; ---; 53	Neiva & Penna	1916
<i>venezuelensis</i> Kröber	---; ---; 328	Kröber	1934
<i>venosus</i> Bigot	---; ---; 53	Strong et al.	1926
<i>venustulus</i> Kröber	---; ---; 75	Kröber	1934
<i>vestitus</i> Wiedemann	---; ---; 53	Kröber	1934
<i>viduus</i> Walker	---; ---; 53	Strong et al.	1926

TABLE 1 - HORSE FLIES (conclusion)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TABANUS</i>			
<i>viridescens</i> Kröber	---; ---; 297	Kröber	1934
<i>vittiger</i> Thomson	---; ---; 116	Kröber	1934
<i>vittiger</i> var. <i>guatemalanus</i> Hine	---; ---; 237	Fairchild	1943
<i>winthemi</i> Kröber	---; ---; 352	Kröber	1934
<i>xipe</i> Kröber	---; ---; 82, 328, 347	Kröber	1934
	---; ---; 329, 352	Bequaert	1940
<i>yucatanus</i> Townsend	---; ---; 137	Szilady	1926
	---; June-July; 204°	Bequaert	1931
	---; ---; 204	Kröber	1934
<i>zonalis</i> Kirby	---; ---; 69	Kröber	1934
<i>TRICERATOMYIA</i>			
<i>macintyreii</i> Bequaert	---; March; 99	Bequaert	1937
<i>VEPRIUS</i>			
<i>presbiter</i> Rondani	---; ---; 75	Kröber	1934
<i>rubricornis</i> Kröber	---; ---; 75	Kröber	1934

LITERATURE CITED

- Ballou, C. H.
1945. Notas sobre insectos dañinos observados en Venezuela 1938-1943. Cuad. verde Com. organ. 3a. Conf. interamer. Agric. no. 34. 151 p.
- Bequaert, J.
1925. Report of an entomological trip to the Truxillo Division, Honduras, to investigate the sand-fly problem. 13th Rep. med. Dep. un. Fruit Co. 1924. pp. 193-206.
- 1931. Tabanidae of the Peninsula of Yucatan, Mexico, with descriptions of new species. J. N. Y. ent. Soc. 39(4):533-553.
- 1937. *Tricoeratomyia*, a new South American genus of Pangoniinae (Diptera, Tabanidae). Rev. Ent., Rio de J. 7(4):350-353.
- 1940. The Tabanidae of the Antilles (Dipt.). Rev. Ent., Rio de J. 11(1-2):253-369.
- Brennan, J. M.
1935. The Pangoniinae of Nearctic America (Tabanidae, Diptera). Kans. Univ. Sci. Bull. 22(13):249-401.
- Brunetti, E.
1923. Two new species of Tabanidae from Cuba. Bull. ent. Res. 13(4):401-402.
- Cleare, L. D.
1919. Some parasites of man and animals in British Guiana. Brit. Guiana med. Annu. for 1919. pp. 58-77.
- Dunn, L. H.
1929. Notes on some insects and other arthropods affecting man and animals in Colombia. Amer. J. trop. Med. 9(6):493-508.
- 1934. Entomological investigations in the Chiriqui Region of Panama. Psyche, Camb., Mass. 41(3):166-183.
- Enderlein, G.
1929. Zur Kenntnis einiger von Herrn Oskar Schoenemann gesammelten chilenischen Melpinen (Dipt.). Wien. ent. Ztg. 46(2):66-71.
- Escomel, E.
1924. Essai sur la Parasitologie d'Aréquipa (Pérou) et de ses environs. Bull. Soc. Pat. exot. 17(10):906-925.
- Fairchild, G. B.
1942. The seasonal distribution of some Tabanidae (Dipt.) in Panama. Ann. ent. Soc. Amer. 35(1):85-91.
- 1943. An annotated list of the bloodsucking insects, ticks and mites known from Panama. Amer. J. trop. Med. 23(6):569-591.
- Flasson, R.
1943. Notes sur les parasites animaux du haut-Apure (Venezuela). Rev. Sci. méd. Afr. franc. Lib. 2(2):125-151. (Abstract used).

- Fischer, C. R.
1933. Sobre a distribuição geographica de *Tabanus importunus* Wied. Rev. Ent., Rio de J. 3(1):134.
- Gigoux, E. E.
1935. El Morro Copiapo. Rev. chil. Hist. nat. 37:253-263.
- Gowley, C. C.
1926. Catalogue insectorum jamaicensis. Ent. Bull. Jamaica. 4(1-2):114.
- Maddow, A. J. & P. S. Corbet
1960. Observations on nocturnal activity in some African Tabanidae (Diptera). Proc. R. ent. Soc. Lond. 35(1-3):1-5.
- Hine, J. S.
1920. Descriptions of horseflies from Middle America. I. Ohio J. Sci. 20(6):185-192.
- 1920a. Description of horseflies from Middle America. II. Ohio J. Sci. 20(8):311-319.
- Hoffmann, W. H.
1921. *Chrysops coartata*, a blood-sucking fly from Cuba. Amer. J. Trop. Med. 1(3):311-312.
- James, M. T.
1950. The diptera collected on the Cockerell and Hubbell expeditions to Honduras. Part I: Stratiomyidae, Tabanidae, and Acroceratidae. Pan-Pacif. Ent. 26(2):86-90.
- Johnson, C. W.
1924. Diptera of the Williams Galapagos Expedition. Zoologica, N. Y. 5(8):85-92.
- Knab, F.
1913. Gad-flies (Tabanidae) of the genus *Stibosoma*. Proc. U. S. nat. Mus. 46:407-412.
- Krüger, O.
1929. Die Stenotabaninae und die Lepidocaelaginae Südamerikas. Encyc. ent., 24r. B. 5:101-154.
- 1929a. Die Ausbeute der deutschen Chaco-Expedition 1925-1926 (Diptera). XIII. Tabanidae. Konowia. 8(2):174-193.
- 1929b. Ergebnisse einer zoologischen Sammelreise nach Brasilien, insbesondere das Amazonasgebiet, ausgeführt von Dr. H. Zeray. I. Teil. Diptera: Tabanidae. Annln naturh. Mus. Wien. 43:243-255.
- 1929c. Ueber einige kleinere Gattungen der südamerikanischen Tabanini. Zool. Anz. 83(1-4):47-63, 115-137.
- 1930. Die südamerikanischen Arten der Gattung *Scioma* Wlk. (= *Phinotriclista* End.) (Dipt.). Stettin. ent. Ztg. 91(2):141-174.

Kröber, O.

1931. Neue Tabaniden aus Südamerika. Stettin. ent. Ztg. 92(1):90-93.

1931a. Neue süd- und mittelamerikanische Arten der Dipterengattung *Tabanus* L. Stettin. ent. Ztg. 92(2):275-305.

1931b. Dreizehn neue neotropische *Tabanus* arten. Konowia. 10(4):291-300.

1931c. Die kleinen Gattungen der Dichelacerinae End. aus der südamerikanischen Region (Tabanidae). Rev. Ent., S. Paulo. 1(3):282-298.

1931d. Neue neotropische Tabaniden aus den Unterfamilien Bellardiinae und Tabaninae. Rev. Ent., S. Paulo. 1(4):400-417.

1931e. Neue Arten der Gattung *Pidua* Walk. (Dipt. Tabanidae). Zool. Anz. 95(1-2):17-37.

1931f. Die *Tabanus*-Gruppen *Straba* End. und *Poeciloscuma* Lutz. (= *Hybostraba* End. und *Hybopelma* End.) der neotropischen Region. Zool. Anz. 94(3-4):67-89.

1932. Das Genus *Esenbeckia* Rondani und die *Gymnocheila*-Untergattung *Amphichlorope* Lutz (Dipt., Tabanidae). Rev. Ent., S. Paulo. 2(1):52-93.

1932a. Die Tabaniden-Subfamilie Bellardiinae End. (Dipt.) der neotropischen Region. Rev. Ent., S. Paulo. 2(3):289-302.

1934. Catalogo dos Tabanidae da America do Sul e Central, incluindo o Mexico e as Antilhas. Rev. Ent., Rio de J. 4(2-3):222-276, 291-333.

Kumm, M. W. & O. Novis

1938. Mosquito studies on the Ilha de Marajó, Pará, Brazil. Amer. J. Hyg. 27(3):498-515.

Lutz, A.

1913. Tabaniden do Brasil e de alguns Estados vizinhos. (Tabaniden Brasileiros und einiger Nachbarstaaten.). Mem. Inst. Osw. Cruz. 5(2):142-191.

1915. Tabaniden do Brasil e de alguns Estados vizinhos: Segunda Memoria. Mem. Inst. Osw. Cruz. 7(1):51-119.

& G. M. Castro

1935. Sobre algumas novas especies de moscas do genero *Esenbeckia* Rondani. Mem. Inst. Osw. Cruz. 30(3):543-562.

& A. Machado

1915. Viagem pelo rio S. Francisco e por alguns dos seus afluentes entre Pirapora e Joazeiro. Mem. Inst. Osw. Cruz. 7(1):5-50.

& A. Buiva

1914. As "Tabanidae" do Estado do Rio de Janeiro. Mem. Inst. Osw. Cruz. 6(2):69-80.

- Lutz, A., H. C. De Souza Araujo & O. Da Fonseca
1918. Viajem científica no Rio Paraná e a Assuncion com Volta por Buenos Aires, Montevideo e Rio Grande. Mem. Inst. Osw. Cruz. 10(2):104-173.
- Mackerras, I. M. & M. E. Fuller
1942. The genus *Pelecorhynchus* (Diptera, Tabanoides). Proc. Linn. Soc. N. S. W. 67(1-2):9-76.
- Martorell, L. F.
1939. Insects observed in the State of Aragua, Venezuela, South America. J. Agric. Univ. P. R. 23(4):177-232.
- Maiva, A. & B. Penna
1916. Viajem científica pelo Norte da Bahia, Sudoeste de Pernambuco, Sul do Piauí e de Norte a Sul de Goiás. Mem. Inst. Osw. Cruz. 8(3):74-224.
- Ortiz, C. I.
1944. Contribución al estudio de la entomología médica del Estado Falcón. Bol. Lab. Clin. Rasetti. 4(14):247-251.
- Patino-Camargo, L.
1940. Artropodos hematófagos de la fauna colombiana. Rev. Acad. colomb. 3(11):337-344.
- Pecanman, L. I.
1937. Notes on some neotropical species of the genus *Chrysops* (Dipt. Taban.). Rev. Ent., Rio de J. 7(2-3):134-141.
———
1940. A new *Chrysops* from Brazil (Dipt. Tabanidae). Rev. Ent., Rio de J. 11(3):886-888.
———
1942. Lista Provisional de los Tabanidos de Venezuela. Bol. Ent. venezol. 1(3):51-58.
- Phillip, C. B.
1947. A catalog of the blood-sucking fly family tabanidae (horseflies and deerflies) of the Nearctic Region north of Mexico. Amer. Midl. Nat. 37(2):227-324.
- Root, F. M.
1922. Notes on mosquitoes and other blood-sucking flies from Porto Rico. Amer. J. Hyg. 2(4):394-405.
———
1924. Notes on blood-sucking arthropods collected at Tela, Honduras and Port Limon, Costa Rica, during the summer of 1924. Rep. med. Dep. un. Fruit Co. pp. 207-209. (Abstract used).
- Smillie, W. G.
1923. The treatment of Mal de Caderas with Tryparsamide. J. Amer. vet. med. Ass. 43(6):706-719.
- Stone, A.
1938. The horseflies of the subfamily Tabaninae of the Nearctic Region. Misc. Publ. U. S. Dep. Agric. no. 305. 171 p.
———
1944. Some Tabanidae from Venezuela. Bol. Ent. venezol. 3(3):125-138.

- Strong, R. P., G. C. Shattuck, J. C. Bequaert & R. E. Wheeler
1926. Medical report of the Hamilton Rice Seventh Expedition to the Amazon in conjunction with the Department of Tropical Medicine of Harvard University, 1924-1925. Contr. Harv. inst. trop. Biol. Med. no. 4. 313 p.
- Surcouf, J.
1923. Diptères nouveaux ou peu connus. Ann. Soc. ent. Fr. 91(3):237-244.
- Szilady, Z.
1926. New and old world horseflies. Biol. hung. 1(7):30.
- Travassos, L. & J. F. Teixeira de Freitas
1942. Relatório da sexta excursão de Instituto Oswaldo Cruz, realizada a zona da Estrada de Ferro Noroeste do Brasil, em Novembro de 1941. Mem. Inst. Osw. Cruz. 37(3):259-286.
- Woke, B. F.
1947. Arthropods of sanitary importance in the Republic of Nicaragua, Central America. Amer. J. trop. Med. 27(3):357-375.
- Wolcott, G. M.
1936. "Insectae Borinquenses." A revised annotated check list of the insects of Puerto Rico with a Host-plant index by J. I. Otero. J. Agric. Univ. P. R. 20(1):1-627.
- 1941. A supplement to "Insectae Borinquenses". J. Agric. Univ. P. R. 25(2):33-158.

P. BITING FLIES

Biting flies belong to several families. The table includes only 3 species.

TABLE 1 - BITING FLIES

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>OLPESCHIA</i> <i>coriacea</i> van der Wulp	---; occasionally bites man; 128°. ---; ---; 204° (Suspected vector of "bay-sore" or human leishmaniasis)	Bequaert	1931
<i>SIPHONA</i> <i>irritans</i> (L.)	---; ---; 223°	Woke	1947
<i>STOMOXYS</i> <i>calcitrans</i> Linnaeus	---; common in houses; 22	van Volkenberg	1932
	- -; ---; 27°	Shannon & Del Ponte	1926
	---; experimentally infected with yellow fever; 53	Hoskins	1934
	---; ---; 53°	Strong et al.	1926
	---; ---; 129°	Cleare	1919
	---; ---; 223°	Woke	1947
	---; ---; 237°	Fairchild	1943

LITERATURE CITED

- Bequaert, J.
1931. Notes on Hippoboscidae. 3. Hippoboscidae of Tucatan. Psyche. 38(4):186-193.
- Clear, L. D.
1919. Some parasites of man and animals in British Guiana. Brit. Guiana med. Annu. pp. 58-77.
- Fairchild, G. B.
1943. An annotated list of the bloodsucking insects, ticks and mites known from Panama. Amer. J. trop. Med. 23(6):569-591.
- Hoskins, M.
1934. An attempt to transmit yellow fever virus by dog fleas (*Ctenocephalides canis* Curt.) and flies (*Stomoxys calcitrans* Linn.). J. Parasit. 20(5):299-303.
- Shannon, R. C. & E. Del Ponte
1926. Sinopsis parcial de los Muscoideos Argentinos. Rev. Inst. bact. B. Aires. 4(5):549-590.
- Strong, R. P., G. C. Shattuck, J. C. Bequaert & R. E. Wheeler
1926. Medical report of the Hamilton Rice Seventh Expedition to the Amazon, in conjunction with the Department of Tropical Medicine of Harvard University, 1924-1925. Contr. Harv. Inst. trop. Biol. Med. no. 4. 313 p.
- Van Volkenberg, H. L.
1932. Report of the parasitologist. Rep. P. R. agric. Exp. Sta. pp. 24-27.
- Woke, P. A.
1947. Arthropods of sanitary importance in the Republic of Nicaragua, Central America. Amer. J. trop. Med. 27(3):357-375.

G. NON-BITING FLIES

The entries for non-biting flies include representatives of several groups. Of course, the most important species in this category are those that feed as larvae on the tissue of living animals.

The tables include 24 species or subspecies.

TABLE 1 - NON-BITING FLIES

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CALLIPHORA</i> <i>cavitaria</i>	---; ---; 328°*	Anduze	1945
<i>erythrocephala</i> (Meigen)	---; ---; 129*	Cleare	1919
<i>CALLITROGA</i> <i>americana</i> Cushin & Patton	---; ---; 18*, 20*, 22*	Geigy & Herbig	1955
<i>CHRYSONYIA</i> <i>macellaria</i> (Fabricius)	---; ---; 53*	Neiva & De Faria	1913
	---; ---; 99*	Valenzuela	1927
	---; ---; 129*	Cleare	1919
	---; ---; 237*	Dunn	1918
	---; ---; 238*	Calero	1948
<i>violacea</i>	---; ---; 129*	Cleare	1919
<i>DOCHILONYIA</i> <i>nomiivora</i> (Coquillett)	---; ---; 27*	Del Ponte	1938
	---; ---; 130*	Floch & Abonnenc	1942 +
	---; common; 237*	Fairchild	1943
	---; ---; 238*	Calero	1948
<i>macellaria</i> Fabricius	---; common; 22°	Wolcott	1941
	---; ---; 27*	Codazzi Aguirre	1932
	---; ---; 53*	Strong et al.	1926
	---; ---; 75*	Reed	1932
	---; common; 82°	Dunn	1929
	---; ---; 325*	Gaminara	1928
<i>viridula</i> R. D.	---; ---; 129*, 329*	Patton	1921
<i>DERMATOBIA</i> <i>spaniventris</i> (Macquart)	---; ---; 27*	Pennington	1919
	Under the skin of arm; Feb.; 128*	Cockerell	1914
	---; ---; 204*	Bequaert	1933 +

TABLE 1 - NON-BITING FLIES (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>DERMATOBIA</i> <i>howini</i> (Linnaeus, Jr.)	Barneys; meadows and woods; 27*, 53*, 227*	Mazza & De Los Rios	1932
	Under skin of man; ---; 27*	Parma, Romana & Codazzi	1932
	---; ---; 53*	Delmanto	1945
	---; ---; 53*	Neiva & De Faria	1913
	---; ---; 82*	Dunn	1929
	---; ---; 99*	Valenzuela	1927
	---; ---; 128*	Dalmat	1955
	---; ---; 129*	Claire	1919
	---; ---; 130*	Floch & Abonnenc	1944 +
	---; ---; 137*	Low	1919
	---; ---; 138*	Loughnan	1922
	---; ---; 223*	Woke	1947
	---; ---; 237*	Dunn	1934
	---; common in jungle; 237*	Fairchild	1943
	---; ---; 238*	Calero	1948
	---; ---; 326*	Anduze	1945
<i>FANNIA</i> <i>fusconotata</i> Rondani	---; ---; 27*	Mazza & Reyes Oribe	1939
<i>HIPPELATES</i> <i>flaviceps</i> (Loew)	---; possible vector of yaws; 21	Kumm & Turner	1938
<i>flavipes</i> Loew	---; feed on ulcers on man during day, seldom enter houses; 21*	Kumm	1935 +
	---; feed on yaws ulcers; 24*	Nicholls	1936
<i>pallipes</i> Loew	---; naturally infected with yaws; 21	Kumm	1935
	---; experimental transmission of yaws; 21	Kumm & Turner	1936

TABLE 1 - NON-BITING FLIES (conclusion)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>HIPPELATES</i> <i>pusio</i> Loew	---; ---; 116° ---; suspected to spread conjunctivitis; 223	Johnson Woke	1924 1947
<i>HYPODERMA</i> <i>bovis</i> De Geer	---; ---; 53*	Dos Santos	1932
<i>LUCILIA</i> <i>caesar</i> Linn.	---; ---; 75*	Donoso Barros	1949 +
<i>OESTRUS</i> <i>ovis</i> Linn.	---; ---; 325*	Isola & Osmani	1944
<i>SARCOPHAGA</i> <i>barbata</i> Thomson	---; ---; 27*	Mazza & Cernejo	1939
<i>oarnaria</i> (Linn.)	---; ---; 129*	Clearse	1919
<i>chrysostoma</i> Wied.	---; ---; 129*	Patton	1921
<i>haemorrhoidalis</i> (Fall)	---; ---; 238*	Calero	1948
<i>lambens</i> Wiedemann	---; ---; 53*	Neiva & De Faria	1913
	---; ---; 69, 352 (Causes myiasis)	Patton	1921
<i>pyophila</i> Neiva & De Faria	---; ---; 53*	Neiva & De Faria	1913
	---; ---; 69, 352 (Causes myiasis)	Patton	1921

TABLE 2 - SUMMARY OF DISEASES OR DISEASE ORGANISMS TRANSMITTED BY
NON-BITING FLIES

SPECIES	DISEASE ORGANISM				DISTRIBUTION
	VIRUS & RICKETTSIA	PROTOZOA	HELMINTHS	OTHER	
<i>CALLIPHORA</i> <i>savitaria</i>				Rhinal myiasis	328
<i>erythrocephala</i> Meigen				Nasal myiasis	129
<i>CALLITROGA</i> <i>americana</i> Cushin & Patton				Myiasis	18, 20, 22
<i>CHRYSONYIA</i> <i>macellaria</i> (Fabricius)				Myiasis	53, 99, 129, 237, 238
<i>violacea</i>				Myiasis	129
<i>COCHLIOMYIA</i> <i>hominivorax</i> (Coquillett)				Myiasis	27
				Nasal & cutaneous myiasis	130 +
				Myiasis	237
				Myiasis	238
<i>macellaria</i> Fabricius				Myiasis	27
				Cutaneous myiasis	53, 325
				Nasal myiasis	75
<i>viridula</i> R. D.				Myiasis	129, 329
<i>DERMATOBIA</i> <i>cyaniiventris</i> (Macquart)				Myiasis	27, 138, 204 +
<i>hominis</i> (Linnaeus)				Myiasis	27, 53, 82, 99, 127, 137, 138, 223, 237, 238
				Cutaneous myiasis	27, 53, 128, 130 + 239, 328
				Ophthalmic myiasis	53
<i>FANNIA</i> <i>fusconotata</i> Rondani				Urinary myiasis	27

TABLE 2 - NON-BITING FLIES (conclusion)

SPECIES	DISEASE ORGANISM					DISTRIBUTION
	VIRUS &					
	RICKETTSIA	PROTOCOA	HELMINTHS	OTHER		
<hr/>						
HYPODERMA bovis De Geer				Myasis		53
LUCILIA caesar Linn.				Intestinal myasis		75 +
OESTRUS ovis Linn.				Myasis		325
SARCOPHAGA barbata Thomson				Anal myasis		27
osmaria (Linn.)				Myasis		129
chrysostoma Wied.				Myasis		129
haemorrhoidalis (Fall)				Myasis		238
Lambens Wiedemann				Myasis		53
pyophila Meiva & De Faria				Myasis		53

LITERATURE CITED

- Anduze, P. J.
1945. Breve nota sobre miiasis humanas en Venezuela. Bol. Ent. venezol.
4(1):37-42.
- Bequaert, J. C.
1933. Contribution to the entomology of Yucatan. Publ. Carneg. Instn
Wash. no. 431. 547-574.
- Calero, M. C.
1948. Cutaneous myiasis in Panama. J. Parasit. 34(4):343-344.
- Cleare, L. D.
1919. Some parasites of man and animals in British Guiana. Brit. Guiana med.
Annu. pp. 58-77.
- Cockerell, T. D. A.
1914. *Dermatobia* in Guatemala. Entomologist. 47(611):131.
- Codazzi Aguirre, J. A.
1932. Nota sobre miiasis por *Cochliomyia macellaria* en el norte Santafecino.
Reun. Soc. argent. Pat. reg. 2:801-803.
- Dalmat, H. T.
1955. Cutaneous myiasis of the scalp due to *Dermatobia hominis* (Linnaeus jr.)
(Diptera; Cuterebridae). Amer. J. trop. Med. Hyg. 4(2):334-335.
- Delmanto, A.
1945. Sobre a miase oftálmica. Tratamento de sua localização intra-orbitária.
Publ. méd., S. Paulo. no. 155. 17, 19-21, 23-24 p.
- Del Ponte, E.
1938. Las especies argentinas del género *Cochliomyia* Y. T. (Dipt. Musc.).
Rev. Ent. 8(3-4):273-281.
- Donoso Barros, R.
1949. Un caso de miiasis digestiva en Chile. Consideraciones sobre una nueva
etiología, *Cucilia Caesar* (Linnaeus) 1758. (Nov. Sp. in Fauna Chilensis.).
Rev. méd. Chile. 77(3):209-211.
- Dos Santos, R.
1932. Localisation rare de l'*Hypoderma bovis* chez l'homme. Ann. Parasit. hum.
comp. 9(6):512-513.
- Dunn, L. N.
1918. Studies on the screw-worm fly, *Chrysomya macellaria*, F., in Panama. J.
Parasit. 4(3):111-121.
- 1929. Notes on some insects and arthropods affecting man and animals in Colombia.
Amer. J. trop. Med. 9(6):493-508.
- 1934. Prevalence and importance of the tropical warble fly, *Dermatobia hominis*
Linn., in Panama. J. Parasit. 20(4):219-226.
- Fairchild, G. B.
1943. An annotated list of the bloodsucking insects, ticks and mites known from
Panama. Amer. J. trop. Med. 23(6):569-591.

Floch, H. & E. Abonnenc

1942. Myiasés humaines en Guyane française *Cochliomyia hominivorax* et *Cochliomyia macellaria*. Publ. Inst. Pasteur Guyane. no. 46. 4 p.

— & —

1944. Sur la myiase « *Dermatobia cyaniventris* » en Guyane française. Rôle vecteur de *Mussonia titillans* (Walker, 1848). Publ. Inst. Pasteur Guyane. no. 85. 3 p.

Geminara, A.

1928. Abscesos mifásicos subcutáneos. Bol. Inst. Clin. quir. B. Aires. 4(28-31):695-696.

Geigy, R. & A. Kerbig

1933. Erreger und Überträger tropischer Krankheiten. Acta. trop., Basel. 472 p.

Isola, W. & J. J. Osimani

1944. Un nuevo caso de oftalmomiasis conjuntival producida por *Oestrus ovis* L. en el Uruguay. Arch. urug. Med. 25(3):260-264.

Johnson, C. W.

1924. Diptera of the Williams Galapagos Expedition. Zoologica. 5(8):85-92.

Kumm, H. W.

1935. The natural infection of *Hippelates pallipes* Loew with the spirochaetes of yaws. Trans. R. Soc. trop. Med. Hyg. 29(3):265-272.

— & T. B. Turner

1936. The transmission of yaws from man to rabbits by an insect vector, *Hippelates pallipes* Loew. Amer. J. trop. Med. 16(3):245-262.

Loughman, W. F. M.

1922. Notes on a case of myiasis. J. R. Army. med. Cps. 38(6):438. (Abstract used).

Low, G. C.

1919. Antimony in the treatment of American Leishmaniasis of the skin. Brit. med. J. no. 3042. 479-480.

Massa, S. & A. Cornejo

1939. Investigaciones sobre dipteros Argentinos. I. Miasis. g. Consideraciones sobre miasis observadas en la provincia de Salta. Publ. Misión Estud. Patol. reg. argent. Jujuy. no. 41. 78-86.

— & M. De Los Rios

1932. Primera comprobación de miasis cutáneas por *Dermatobia hominis* en Jujuy. Reun. Soc. argent. Pat. reg. 2:787-796.

— & E. Reyes Oribe

1939. Investigaciones sobre dipteros argentinos. I. Miasis. Publ. Misión Estud. Patol. reg. argent. Jujuy. no. 41. 66-69.p.

Neiva, A. & G. De Faria

1913. Notas sobre un caso de miasis humana ocasionada por larvas de *Sarcophaga pyrophila*, sp. n. Mem. Inst. Osw. cruz. 5(1):16-23.

Nicholls, L.

1936. *Franseria tropica*—a short review of a colonial report concerning statistics and *Hippelates flavipes*. Ann. trop. Med. Parasit. 30(3):331-335.

Parns, B., C. Borda & J. A. Codazzi Aguirre

1932. Comprobación de la Ura en el norte Santaferino. Reun. Soc. argent. Pat. reg. 2:791-800.

- Patton, W. S.
 1921. Notes on the myiasis-producing diptera of man and animals. Bull. ent. Res. 12(3):239-261.
- Pennington, M. S.
 1919. Notas sobre un Caso de la Enfermedad llamada "Ura," causada por la Larva de de la *Dermatobia cyaniventris* Macq. Physis, B. Aires. 4(18):577-578.
- Reed, E. P.
 1932. Larvas de Dipteros encontradas en las Fecas Masales de un Enfermo, en el Hospital Van Buren, de Valparaiso. Rev. chil. Hist. nat. 36:143-144.
- Strong, R. P., G. C. Shattuck, J. C. Bequaert, & R. E. Wheeler
 1926. Medical report of the Hamilton Rice Seventh Expedition to the Amazon, in conjunction with the Department of Tropical Medicine of Harvard University, 1924-1925. Contr. Harv. Inst. trop. Biol. Med. no. 4. 312.
- Valenzuela, A. J.
 1927. Die Republik Ecuador und ihre Pathologie. Arch. Schiffsa-u. Tropenhyg. 30(1):13-20.
- Voke, P. A.
 1947. Arthropods of sanitary importance in the Republic of Nicaragua, Central America. Amer. J. trop. Med. 27(3):357-375.
- Wolcott, G. M.
 1941. A supplement to "Insectas Borinquenses". J. Agric. Univ. P. R. 25(2):33-158.

F. FLEAS

The entries for fleas include almost no biology. Very few authors deal with flea biology. A few authors comment on fleas as vectors, but most of the literature deals with taxonomy and hosts.

The tables include 376 species or subspecies.

TABLE 1 - FLEAS

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>ACTENOPSYLLA</i> <i>suavis</i> Jordan & Rothschild	---; ---; 204	da Costa Lima & Matheway	1946
<i>ADORATOPSYLLA</i> <i>antiquorum</i> <i>antiquorum</i> (Rothschild)	---; ---; 53	Johnson	1957
<i>antiquorum</i> <i>ounhai</i> (Pinto)	---; ---; 53	da Costa Lima	1943
<i>antiquorum</i> <i>discreta</i> (Jordan)	---; ---; 82	Johnson	1957
<i>antiquorum</i> <i>rounai</i> Guimarães	---; Nov.; 53	Johnson	1957
<i>bisetosa</i> Bring	---; Sept.; 53	Johnson	1957
<i>dilecta</i> Jordan	---; ---; 328	Johnson	1957
<i>intermedia</i> <i>oepha</i> (Jordan)	---; ---; 82, 99, 237	Johnson	1957
<i>intermedia</i> <i>intermedia</i> (Wagner)	---; ---; 53, 99, 239	Johnson	1957
<i>intermedia</i> <i>oryzini</i> (Jordan)	---; ---; 328	Johnson	1957
<i>sinuata</i> Guimarães	---; ---; 53	Johnson	1957
<i>AGASTOPSYLLA</i> <i>bori</i> Jordan & Rothschild	---; ---; 27	Johnson	1957
<i>hiruntior</i> Treub	---; at 16,000 feet elevation, Oct.; 240	Johnson	1957
<i>nylota</i> Treub	---; at 14,500 feet elevation, Feb.; 240	Johnson	1957
<i>pearsoni</i> Treub	---; Sept.; 240	Johnson	1957

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>BARREHOPSYLLA</i> <i>zevilei</i> Jordan	---; ---; 27	Johnson	1957
<i>CEDIOPSYLLA</i> <i>epillumini</i> Jordan	---; ---; 99	Johnson	1957
<i>CERATOPHYLLUS</i> <i>apollinaris</i> Jordan & Rothschild	---; ---; 82	Jordan & Rothschild	1921 a
<i>armandus</i> Jordan & Rothschild	---; ---; 75	Jordan & Rothschild	1920
<i>campaniger</i> Jordan	---; ---; 99	Jordan	1931 a
<i>celus</i> <i>apricus</i> Jordan	---; ---; 18	de Costa Lima & Mathewy	1946
<i>steniopus</i> Jordan & Rothschild	---; ---; 75	Jordan & Rothschild	1920
<i>dolens</i> Jordan & Rothschild	---; ---; 85	Jordan	1931 a
<i>dolens</i> <i>quitarus</i> Jordan	---; ---; 99	Jordan	1931 a
<i>endymionis</i> Rothschild	---; ---; 27, 75	Jordan & Rothschild	1921 b
<i>equatoris</i> Jordan	---; ---; 99	Jordan	1933
<i>fasciatus</i> (Bosc d'Antic)	---; in houses, Dec., Jan., 27°	Sevillu	1934
	---; ---; 53	Pinto et al.	1928 +
	---; experimentally infected with <i>Rickettsia</i> <i>provasecti</i> ; 204	Mosser & Castaneda	1932
<i>gallinae</i> <i>gallinae</i> (Schrank)	---; ---; 204	de Costa Lima & Mathewy	1946
<i>gilvum</i> Jordan & Rothschild	---; ---; 204	Jordan & Rothschild	1922

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CERATOPHYLLUS</i>			
<i>casius</i> Rothschild	---; ---; 27	Jordan & Rothschild	1920
<i>londiniensis</i> Rothschild	---; ---; 27, 239	Jordan & Rothschild	1921b
	---; all year; 99	Eskey	1930
<i>mundus</i> Jordan & Rothschild	---; ---; 204	Jordan & Rothschild	1922
<i>CHILLOPSYLLA</i>			
<i>allophyla</i> (Rothschild)	---; ---; 27, 75	Johnson	1957
<i>CLEOPSYLLA</i>			
<i>monticola</i> Smit	---; July; 82. ---; Apr., Oct.; 99	Johnson	1957
<i>townsendi</i> Rothschild	---; ---; 99	Jordan	1931 a
	---; at 12,000 and 16,000 feet elevation, March; 240	Johnson	1957
<i>CRANEOPSYLLA</i>			
<i>ashilles</i> Rothschild	---; ---; 99	Uriarte et al.	1934
<i>area</i> Rothschild	---; ---; 75	Uriarte et al.	1934
<i>chivis</i> Jordan	---; at 1000 meter elevation, April; 27	Jordan	1931 b
<i>inoa</i> Rothschild	---; ---; 240	Uriarte et al.	1934
<i>mare</i> Rothschild	---; ---; 27	Uriarte	1934
<i>minerva</i> (Rothschild)	---; ---; 27	Savino & R'nsel	1942
	---; ---; 53, 239	d. osta Lima & Mathaway	1946
	---; ---; 240	Jordan	1950
<i>minerva</i> <i>minerva</i> (Rothschild)	---; ---; 27, 53, 240	Johnson	1957

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITAT; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CRANEOPSYLLA</i>			
<i>minerva</i>			
<i>wolffhuegeli</i> (Rothschild)	---; ---; 27, 53	Johnson	1957
<i>pallas</i> Rothschild	---; ---; 240	Uriarte et al.	1934
<i>tolmera</i> Jordan	---; Dec.; 99	Jordan	1931
<i>wolffhuegeli</i> (Rothschild)	---; Feb.-Aug., Nov.-Dec.; 27	de la Barrera	1940
	---; ---; 75, 99, 240	Macchiavello	1948
	---; ---; 239	Jordan	1942
<i>CTENIDIOSOMUS</i>			
<i>rex</i> Johnson	---; ---; 82	Johnson	1957
<i>spillmanni</i> Jordan	---; Dec.; 99. ---; in houses; 240	Johnson	1957
<i>traubi</i> Johnson	---; ---; 82	Johnson	1957
<i>CTENIDIOSOMUS</i>			
<i>canis</i> (Curtis)	---; ---; 24	Hutson	1943 +
	---; ---; 27, 328. ---; ---; 75, 99, 240 (On man)	Johnson	1957
	---; experimentally infected with yellow fever; 53	Hoskins	1934
	---; ---; 75°, 82, 99, 240°	Macchiavello	1948
	---; Dec.-July; 99°	Suarez	1942
	---; ---; 128	da Costa Lima & Hathaway	1946
	---; June; 204	Hoffmann	1948
	---; ---; 238	Fairchild	1943
	---; floors of houses, patients' clothes; 240	Macchiavello et al.	1946
<i>felis</i> (Bruché)	---; ---; 24	Saunders	1914
	---; ---; 27	Uriarte et al.	1934
	---; in houses; 53°	da Costa Lima	1943

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CTENOCEPHALIDES</i> <i>felis</i> (Bouché)	---; ---; 82	Patin-- Camargo	1940 +
	---; ---; 137	Root	1924
	---; June; 204	Hoffmann	1948
	---; ---; 204°	Roberts	1934
	---; ---; 223°	Woke	1947
	---; ---; 237	Dunn	1934
	---; ---; 238	Fairchild	1943
<i>felis</i> <i>felis</i> (Bouché)	---; ---; 27, 51, 128, 130, 204	da Costa Lima & Hathaway	1946
	---; ---; 53, 75, 82, 96, 239, 240, 297, 325, 328	Johnson	1957
	---; ---; 75°	Macchiavello	1948
<i>CTENOCEPHALUS</i> <i>canis</i> (Curtis)	---; ---; 21	Gowley	1926
	---; ---; 22	Wolcott	1936
	---; ---; 23	Carnes	1931
	---; ---; 27	Bacigalupo	1932
	---; intermediate host of <i>Dipylidium caninum</i> , occasionally infecting man, especially children; 53	Strong et al.	1926
	---; ---; 75	Macchiavello	1942
	---; ---; 99	Eskey	1930
	---; ---; 137, 237, 240	Nacht	1942
	---; experimentally infected with <i>Rickettsia</i> <i>provasecti</i> ; 204	Mooser & Castaneda	1932
	---; intermediate host of <i>Dipylidium caninum</i> , a tape worm that occasionally is found in man, especially children; 223	Woke	1947
<i>felis</i> (Bouché)	---; ---; 21	Gowley	1926
	---; ---; 22	Wolcott	1936
	---; ---; 23	Carnes	1931
	---; ---; 27	de la Barrera & Arseno	1934

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CTENOCEPHALUS felis</i> (Bouché)	---; intermediate host of <i>Dipylidium caninum</i> , occasionally infecting man, especially children; 53	Strong et al.	1926
	---; ---; 99	Eskey	1930
	---; common; 129°	Cleare	1919
	---; experimentally infected with <i>Rickettsia prowazeki</i> ; 204	Mooser & Castaneda	1932
	---; ---; 204, 237, 240. ---; ---; 328°	Necht	1942
<i>serratorisps</i> (Cervais)	---; ---; 99	Espinosa-Tamayo	1917
<i>CTENOPARIA inopinata</i> Rothschild	---; ---; 75	Jordan	1957
<i>jordani</i> Smit	---; ---; 27	Johnson	1957
<i>CTENOPSYLLUS segnis</i> (Schödherr)	---; suspected vector of plague; 53°	da Costa Lima	1943
<i>DACTYLOPSYLLA mexicana</i> (Fox)	---; ---; 204	da Costa Lima & Hathaway	1946
<i>DASYPSYLLUS acmulus</i> Jordan	---; ---; 27	Johnson	1957
<i>araucoanus</i> (Jordan & Rothschild)	---; Aug.; 75	Johnson	1957
<i>oomatus</i> Jordan	---; ---; 27	Johnson	1957
<i>steniopus</i> (Jordan & Rothschild)	---; Aug.; 75	Johnson	1957
<i>gallinulae</i> (Dale)	---; ---; 237	Traub	1951
<i>lasius</i> (Rothschild)	---; --- 27	da Costa Lima & Hathaway	1946
<i>lasius lasius</i> (Rothschild)	---; July; 27	Johnson	1957

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>DASYPSYLLUS</i>			
<i>lasius</i>			
<i>venezuelensis</i> (Fox & Anduse)	---; ---; 328	Johnson	1957
<i>DELOSTICHUS</i>			
<i>oomalis</i> (Rothschild)	---; ---; 75 ---; ---; 240	Johnson Jordan	1957 1942
<i>octomys</i> Jordan	---; ---; 27, 75	Johnson	1957
<i>phyllotis</i> Johnson	---; at 8,200 feet elevation, Aug.; 240	Johnson	1957
<i>talis</i> Jordan	---; vector capacity for plague; 27	Macchiavello	1954
<i>xenurus</i> (Rothschild)	---; at 13,000 feet elevation, March; 240	Johnson	1957
<i>DERMATOPHILUS</i>			
<i>caecata</i> (Enderlein)	---; ---; 53	Strong et al.	1926
<i>penetrans</i> (Linnaeus)	---; ---; 21 ---; ---; 27, 53°, 204, 325 (Host man) ---; common inside huts; 82° ---; ---; 129 ---; earth floors of native houses; 237°	Cowdrey Strong et al. Dunn Cleare Dunn	1926 1926 1929 1919 1923
<i>DORATOPSYLLA</i>			
<i>oruzi</i> (Cusha)	---; ---; 53	Strong et al.	1926
<i>intermedia</i> Wagner	---; ---; 297 ---; ---; 328	Rayne Isaac Riaz	1923 1948 +
<i>DYSMICUS</i>			
<i>acheronis</i> Johnson	---; at 3200 feet elevation, Aug.; 240	Johnson	1957
<i>barrerae</i> (Jordan)	---; ---; 27	Johnson	1957
<i>budini</i> (Jordan & Rothschild)	---; ---; 27	da Costa Lima & Methaway	1946

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>DYSNICUS</i>			
<i>olaviger</i> (Rothschild)	---; ---; 240	Johnson	1957
<i>hapalus</i> Jordan	---; ---; 27	Johnson	1957
<i>hertigi</i> Johnson	---; at 12,600 feet and 13,200 feet elevation, Feb., April; 240	Johnson	1957
<i>isanus</i> Jordan	---; ---; 27	Johnson	1957
<i>pearsoni</i> Johnson	---; at 12,500 feet elevation, Jan.; 240	Johnson	1957
<i>sentus</i> (Rothschild)	---; above 12,000 feet, June; 240	Johnson	1957
<i>simonsi</i> (Rothschild)	---; Oct.; 51	Johnson	1957
<i>viscachae</i> (Wagner)	---; at 4,000 meters elevation, April; 240	Johnson	1957
<i>ECHIDNOPHAGA</i>			
<i>gallinacea</i> (Westwood)	---; ---; 21	Gowdey	1926
	---; ---; 22, 237	Sharif	1930
	---; ---; 53	da Costa Lima	1943
	---; ---; 75, 98, 240	Johnson	1957
	---; ---; 137	Root	1924
	---; June; 204	Hoffman	1948
	---; ---; 204°	Dampf	1925 +
	---; ---; 237°	Fairchild	1943
<i>ECHIDNOPHAGA</i>	---; ---; 75°, 99°, 240°	Macchiavello	1948
<i>gallinacea</i> <i>gallinacea</i> (Westwood)	---; ---; 204	da Costa Lima & Hathaway	1946
<i>ECTINORUS</i>			
<i>ooyti</i> (Rothschild)	---; ---; 75	Johnson	1957
<i>disjunctus</i> Jordan	---; Aug.; 27	Johnson	1957

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>ECTINORUS</i> <i>hecate</i> Johnson	---; at 15,500 feet elevation, March; 240	Johnson	1957
<i>ineptus</i> Johnson	---; Sept.; 240	Johnson	1957
<i>levipes</i> (Jordan & Rothschild)	---; ---; 27	de Costa Lima & Hathaway	1946
<i>onychius</i> <i>fueginus</i> Jordan	---; ---; 27	Johnson	1957
<i>onychius</i> <i>onychius</i> (Jordan & Rothschild)	---; ---; 27	Johnson	1957
<i>polymerus</i> Jordan	---; ---; 27	Johnson	1957
<i>setosicornis</i> Jordan	---; ---; 27	Johnson	1957
<i>trionyx</i> Jordan	---; ---; 27	Johnson	1957
<i>ERITRANIS</i> <i>andrius</i> (Jordan)	---; ---; 27	Johnson	1957
<i>HECTOPSYLLA</i> <i>brosicus</i> Jordan & Rothschild	---; Feb.-Aug., Nov.-Dec.; 27	de la Barrera	1940
<i>coniger</i> Jordan & Rothschild	---; Feb.-Aug., Nov.-Dec.; 27	de la Barrera	1940
	---; at 3000 meter altitude; 51	Johnson	1957
<i>cypha</i> Jordan	---; ---; 27	Johnson	1957
<i>eskeyi</i> Jordan	---; experimental transmission of typhus; 51	Veintemillas	1936
	---; ---; 99	Johnson	1957
	---; vector capacity for plague; 240	Macchiavello	1954
<i>gavine</i> Jordan	---; Feb.-Aug., Nov.-Dec.; 27	de la Barrera	1940

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>HECTOPSYLLA</i> <i>petttaei</i> Frauenfeld	---; ---; 27, 53, 75, 240	Johnson	1957
<i>stomis</i> Jordan	---; Feb.-Aug., Nov.-Dec.; 27	de la Barrera	1940
<i>suarezi</i> Fox	---; ---; 75°, 240°	Macchiavello	1948
	---; vector capacity for plague; 99	Macchiavello	1954
	---; ---; 240	Johnson	1957
<i>HOPLOPSYLLUS</i> <i>andensis</i> Jordan	---; ---; 99, 240	Macchiavello	1948
<i>exotious</i> Jordan & Rothschild	---; ---; 237	da Costa Lima & Mathaway	1946
<i>manoonis</i> Jordan	---; at 2000 meters elevation, wheat field, Nov.;	Johnson	1957
<i>HORNOPSYLLA</i> <i>egena</i> Jordan	---; ---; 240	Johnson	1957
<i>fosteri</i> (Rothschild)	---; ---; 53	da Costa Lima & Mathaway	1946
	---; Aug.; 239	Johnson	1957
<i>nostilionis</i> (Lima)	---; ---; 53	da Costa Lima & Mathaway	1946
<i>truei</i> Jordan	---; Aug.; 240	Johnson	1957
<i>ISCHNOPSYLLUS</i> <i>isidori</i> (Weyenberg)	---; ---; 27	da Costa Lima & Mathaway	1946
<i>reductor</i> (Lima.)	---; ---; 75	Macchiavello	1948
<i>KOHLISIA</i> <i>campaniger</i> (Jordan)	---; ---; 99	Johnson	1957

TABLE 1 - FLIRAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>LEPTOPSYLLA</i>	---; ---; 22	Wolcott	1936
<i>sognis</i> (Schubherr)	---; in houses, Dec., Jan.; 27°	Savino	1934
	---; ---; 27, 75, 99, 240	Johnson	1957
	---; naturally infected with <i>Hymenolaps diminuta</i> ; 53	Pessoa	1935
	---; in houses; 75°, 240°	Macchiavello	1948
	---; experimentally infected with <i>Rickettsia prowaseki</i> ; 204	Mooser & Castaneda	1932
	---; June; 204	Hoffmann	1948
	---; ---; 328	Issac Riaz	1948 +
<i>LISTRONIUS</i>			
<i>fortis</i> (Jordan & Rothschild)	---; Jan.; 27	Johnson	1957
<i>robertianus</i> Jordan	---; ---; 104	Johnson	1957
<i>ulus</i> (Jordan & Rothschild)	---; Dec.; 27	Johnson	1957
<i>LOENOPSYLLA</i>			
<i>cheopis</i> Fox	---; ---; 18	Guteris	1912
<i>MALACOPSYLLA</i>			
<i>grossiventris</i> (Weyenbergh)	---; ---; 27, 53	da Costa Lima	1943
<i>grossiventris</i> <i>goniata</i> Wagner	---; ---; 27	da Costa Lima & Mathewy	1946
<i>grossiventris</i> <i>grossiventris</i> (Weyenbergh)	---; ---; 27, 53, 239	da Costa Lima & Mathewy	1946
<i>MOROPSYLLA</i>			
<i>eohidrophagoides</i> Wagner	---; ---; 85	da Costa Lima & Mathewy	1946
<i>MYDOPSYLLA</i>			
<i>collinsi</i> Rohls	---; ---; 204	da Costa Lima & Mathewy	1946
<i>isidori</i> (Weyenbergh)	---; ---; 27	Johnson	1957

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>NYODOPSYLLA</i> <i>notialis</i> Jordan	---; ---; 53	da Costa Lima	1943
<i>setosa</i> Johnson	---; Dec.; 240	Johnson	1957
<i>wolffsohni</i> (Rothschild)	---; ---; 27, 75, 239	da Costa Lima & Mathaway	1946
<i>wolffsohni</i> <i>salvasei</i> Jordan	---; June; 328	Johnson	1957
<i>wolffsohni</i> <i>wolffsohni</i> (Rothschild)	---; ---; 27, 58, 75, 239	Johnson	1957
<i>NEOTYPHLOCERAS</i> <i>crassispina</i> Rothschild	---; ---; 352	Jordan	1936
<i>crassispina</i> <i>chilensis</i> Jordan	---; ---; 75	Johnson	1957
<i>crassispina</i> <i>crassispina</i> Rothschild	---; ---; 27. ---; at 12,000 feet elevation, March; 240 ---; ---; 51, 75	Johnson da Costa Lima & Mathaway	1957 1946
<i>crassispina</i> <i>hamius</i> Jordan	---; Feb.-Aug., Nov.-Dec.; 27 ---; ---; 51	de la Barrera Johnson	1940 1957
<i>rosenbergi</i> (Rothschild)	---; ---; 82, 240. ---; May-June; 99	Johnson	1957
<i>NEHAPSILLA</i> <i>rothschildi</i> Wagner	---; ---; 51	da Costa Lima & Mathaway	1946
<i>rothschildi</i> <i>rothschildi</i> Wagner	---; ---; 51	Johnson	1957
<i>rothschildi</i> <i>wagneri</i> Jordan	---; 12,000 feet, Jan., August; 240	Johnson	1957

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>NOSOPSYLLUS</i> <i>endymionis</i> (Rothschild)	---; ---; 27, 75	da Costa Lima & Mathewy	1946
<i>fasciatus</i> (Bosc d'Antic)	---; ---; 27, 53, 75	Johnson	1957
	---; ---; 75°	Macchiavello	1946
<i>londinensis</i> (Rothschild)	---; ---; 27	da Costa Lima & Mathewy	1946
	---; vector capacity for plague; 99	Macchiavello	1954
	---; ---; 99°	Macchiavello	1948
	---; ---; 240	Johnson	1957
<i>OPISODASTIS</i> <i>perotensis</i> Dampf	---; ---; 204	da Costa Lima & Mathewy	1946
<i>robustus</i> <i>maricoccus</i> Dampf	---; ---; 204	da Costa Lima & Mathewy	1946
<i>robustus</i> <i>robustus</i> (Jordan)	---; ---; 204	da Costa Lima & Mathewy	1946
<i>ORNITHOPSYLLA</i> <i>suavis</i> Jordan & Rothschild	---; ---; 204	da Costa Lima & Mathewy	1946
<i>OROPSYLLA</i> <i>montana</i> (Baker)	---; ---; 204	da Costa Lima & Mathewy	1946
<i>PARALLIUS</i> <i>galeatus</i> (Jordan)	---; May; 27	Johnson	1957
<i>PARAPSYLLUS</i> <i>repinus</i> Jordan & Rothschild	---; ---; 27, 75	Jordan & Rothschild	1923
<i>caudatus</i> Jordan	---; Feb.-Aug., Nov.-Dec.; 27	de la Barrera	1940
<i>barrerae</i> Jordan	---; Feb.-Aug., Nov.-Aug.; 27	de la Barrera	1940
<i>bleptus</i> Jordan & Rothschild	---; ---; 27	Jordan & Rothschild	1923

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>PARAPSYLLUS</i>			
<i>budini</i> Jordan & Rothschild	---; ---; 27	Jordan & Rothschild	1923
<i>claviger</i> Rothschild	---; ---; 240	Wagner	1937
<i>cooyti</i> Rothschild	---; ---; 75	Jordan & Rothschild	1923
<i>oorfidii</i> Rothschild	---; ---; 75	Jordan & Rothschild	1923
<i>oonalis</i> Rothschild	---; ---; 75	Jordan & Rothschild	1923
<i>fortis</i> Jordan & Rothschild	---; ---; 27	Jordan & Rothschild	1923
<i>galeanus</i> Jordan	---; Feb.-Aug., Nov.-Dec.; 27	de la Barrera	1940
<i>hircinus</i> Del Ponte & Riechel	---; ---; 27*	da Costa Lima & Rathaway	1946
<i>levipes</i> Jordan & Rothschild	---; ---; 27	Jordan & Rothschild	1923
<i>longicaornis</i> Enderlein	---; ---; 75 ---; ---; 130	Macchiavello Jordan & Rothschild	1948 1923
<i>longicaornis</i> <i>alpinus</i> Jordan	---; ---; 104	Johnson	1957
<i>longicaornis</i> <i>australiacus</i> Rothschild	---; ---; 75	da Costa Lima & Rathaway	1946
<i>longicaornis</i> <i>humboldtii</i> Jordan	---; ---; 75	Johnson	1957
<i>magellanicus</i> Jordan	---; ---; 104	da Costa Lima & Rathaway	1946
<i>magellanicus</i> <i>magellanicus</i> Jordan	---; Nov.; 104	Johnson	1957

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITAT; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>PARAPSYLLUS</i>			
<i>onychius</i> Jordan & Rothschild	---; ---; 27	Jordan & Rothschild	1923
<i>sentus</i> Rothschild	---; ---; 240	Jordan & Rothschild	1923
<i>simonsi</i> Rothschild	---; ---; 51	Jordan & Rothschild	1923
<i>talis</i> Jordan	---; Feb.-Aug., Nov.-Dec.; 27	de la Barrera	1940
<i>tantillus</i> Jordan & Rothschild	---; ---; 27	Jordan & Rothschild	1923
<i>ulus</i> Jordan & Rothschild	---; ---; 27	Jordan & Rothschild	1923
<i>viscachae</i> Wagaer	---; ---; 240	Wagner	1937
<i>xenurus</i> Rothschild	---; ---; 240	Jordan & Rothschild	1923
<i>PHTHIROPSYLLA</i>			
<i>agenoris</i> (Rothschild)	---; Feb.-Aug., Nov.-Dec.; 27	de la Barrera	1940
	---; ---; 53	de Costa Lima	1943
<i>PLEOCHAETIS</i>			
<i>apollinaris</i> (Jordan & Rothschild)	---; ---; 82	Johnson	1957
<i>dolens</i> <i>quitanus</i> (Jordan)	---; vector capacity for plague; 240	Macchiavello	1954
	---; in human bed; 240	Johnson	1957
<i>equatoris</i> <i>equatoris</i> Jordan	---; ---; 82	Johnson	1957
	---; vector capacity for plague; 240	Macchiavello	1954
<i>sibyrus</i> Jordan	---; at 12,500 feet elevation, July; 204	Hubbard	1947
<i>smitti</i> Johnson	---; ---; 82, 99	Johnson	1957
<i>PLONOPSYLLA</i>			
<i>achilles</i> (Rothschild)	---; ---; 99, 240	Johnson	1957

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>PLOCOFSYLLA</i>			
<i>chiris</i> Jordan	---; ---; 27	Johnson	1957
<i>enderleini</i> Wagner	---; ---; 51	Johnson	1957
<i>hector</i> Jordan	---; ---; 99	Johnson	1957
<i>heros</i> Jordan	---; at 2,950 meters elevation, April, Nov.; 99	Johnson	1957
<i>inti</i> Johnson	---; at 11,500 feet elevation, Jan.; 240	Johnson	1957
<i>pallas</i> (Rothschild)	---; at 1200 feet elevation, March; 240	Johnson	1957
<i>phobos</i> Jordan	---; ---; 99	Johnson	1957
<i>phyllisae</i> Smit	---; July; 99	Johnson	1957
<i>thor</i> Johnson	---; at 2,200 meters elevation, Aug.; 82	Johnson	1957
<i>wolffsohni</i> (Rothschild)	---; ---; 27, 75	Johnson	1957
<i>ulysses</i> Hopkins	---; April; 99	Johnson	1957
<i>POLYGENIS</i>			
<i>acodontis</i> (Jordan & Rothschild)	---; Oct.; 27	Johnson	1957
<i>adelus</i> (Jordan & Rothschild)	---; ---; 53	Johnson	1957
<i>agilis</i> (Prado)	---; ---; 53	Johnson	1957
<i>atopus</i> (Jordan & Rothschild)	---; ---; 27, 53	Johnson	1957
<i>axius</i> (Jordan & Rothschild)	---; ---; 27	da Costa Lima & Hathaway	1946

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>POLYGENIS</i>			
<i>axius</i>			
<i>axius</i> (Jordan & Rothschild)	---; ---; 27, 53	Johnson	1957
<i>axius</i> <i>proxima</i> Guimarães	---; ---; 53	Johnson	1957
<i>bohlsi</i>	---; ---; 27, 53, 99, 239	Johnson	1957
<i>bohlsi</i> (Wagner)	---; ---; 82	da Costa Lima & Hathaway	1946
	---; ---; 328	Issac Riaz	1948 +
<i>bohlsi</i> <i>jordani</i> (Costa Lima)	---; ---; 53	Johnson	1957
	---; ---; 328	Issac Riaz	1948 +
<i>brachinus</i> Jordan	---; at 2,000 meters elevation, Nov., in houses; 240	Johnson	1957
<i>byturus</i> (Jordan & Rothschild)	---; Aug., Oct.; 27	Johnson	1957
<i>dendrobis</i> (Wagner)	---; ---; 51	Johnson	1957
<i>dunni</i> (Jordan & Rothschild)	---; ---; 237	da Costa Lima & Hathaway	1946
	---; ---; 238, 328, 329	Johnson	1957
<i>frustratus</i> Johnson	---; July, Sept.; 53	Johnson	1957
<i>impavidus</i> Johnson	---; at 2,400 meters elevation, July, Nov.; 240	Johnson	1957
<i>klagesi</i> <i>klagesi</i> (Rothschild)	---; ---; 53, 82, 237, 328	da Costa Lima & Hathaway	1946
<i>klagesi</i> <i>scutellus</i> (Jordan & Rothschild)	---; ---; 237, 328	da Costa Lima & Hathaway	1946
	---; ---; 328	Issac Riaz	1948 +

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>POLYGENIS</i>			
<i>lakoi</i> Guimarães	---; ---; 53	Johnson	1957
<i>litargus</i> (Jordan & Rothschild)	---; at 1,750 feet elevation; 99. ---; ---; 240	Johnson	1957
<i>litargus</i> <i>litargus</i> Jordan & Rothschild	---; vector of capacity for plague; 240	Macchiavello	1954
<i>litargus</i> <i>puelche</i> (Del Ponte & Riesel)	---; ---; 27	da Costa Lima & Hathaway	1946
<i>litus</i> (Jordan & Rothschild)	---; ---; 99, 240	Macchiavello	1948
<i>nitidus</i> Johnson	---; ---; 53	Johnson	1957
<i>occidentalis</i> (Cunha)	---; ---; 53	da Costa Lima	1943
	---; ---; 328	Issac Riaz	1948 +
<i>occidentalis</i> <i>occidentalis</i> (Cunha)	---; ---; 53	Johnson	1957
<i>occidentalis</i> <i>steganus</i> (Jordan & Rothschild)	---; ---; 328, 329	Johnson	1957
<i>peronis</i> (Jordan & Rothschild)	---; ---; 328	Johnson	1957
<i>platensis</i> <i>cisandinus</i> (Jordan)	Pine sawdust; Feb.-Aug., Nov.-Dec.; 27	de la Barrera	1940
<i>platensis</i> <i>platensis</i> (Jordan & Rothschild)	---; ---; 27, 75, 325	da Costa Lima & Hathaway	1946

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>POLYGENIS</i>			
<i>platensis</i>			
<i>versutus</i>	---; ---; 53	Johnson	1957
Guimarães			
<i>plamanni</i>	---; ---; 53	da Costa	
(Wagner)		Lima & Hathaway	1946
<i>pradoi</i>	---; ---; 53	Johnson	1957
(Wagner)			
<i>pygaeus</i>	---; ---; 53	da Costa	
(Wagner)		Lima & Hathaway	1946
<i>pygaeus</i>			
<i>dentei</i>	---; ---; 53	Johnson	1957
Guimarães			
<i>pygaeus</i>			
<i>pygaeus</i>	---; ---; 53	Johnson	1957
(Wagner)			
<i>rimatus</i>	---; ---; 53, 239	da Costa	
(Jordan)		Lima & Hathaway	1946
<i>rimatus</i>			
<i>atra</i>	---; ---; 53	Johnson	1957
Guimarães			
<i>rimatus</i>			
<i>rimatus</i>	---; ---; 27, 53, 239	Johnson	1957
(Jordan)			
<i>roberti</i>	---; ---; 53, 82, 99, 240, 328	da Costa	
(Rothschild)		Lima & Hathaway	1946
<i>roberti</i>	---; ---; 240. ---; at 3,600 feet elevation,	Johnson	1957
<i>beebei</i>	Aug.; 328		
(Fox)			
<i>roberti</i>			
<i>roberti</i>	---; ---; 53	Johnson	1957
(Rothschild)			
<i>roberti</i>			
<i>tripopsis</i>	---; ---; 53, 329	Johnson	1957
Guimarães			
<i>steganeus</i>	---; ---; 328	da Costa	
(Jordan & Rothschild)		Lima & Hathaway	1946

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>POLYGENIS</i> <i>thurmani</i> Johnson	---; Feb., Sept.; 240	Johnson	1957
<i>tripus</i> (Jordan)	---; ---; 27, 53	Johnson	1957
<i>truncatus</i> (Guimarães)	---; ---; 53	da Costa Lima & Hathaway	1946
<i>versuta</i> Guimarães	---; ---; 53	da Costa Lima & Hathaway	1946
<i>PTILOPSYLLA</i> <i>dunni</i> Kohls	---; ---; 237	da Costa Lima & Hathaway	1946
	---; ---; 238	Fairchild	1943
<i>leptina</i> Jordan & Rothschild	---; ---; 53, 239	Johnson	1957
	---; ---; 329	Jordan & Rothschild	1921
<i>PULEX</i> <i>conepati</i> Cunha	---; ---; 53	da Costa Lima & Hathaway	1946
<i>dugei</i> (Baker)	---; ---; 99	Espinosa- Tamayo	1917
<i>irritans</i> Linnaeus	---; ---; 19	Russo	1927
	---; ---; 21°	Gowdey	1926
	---; ---; 22°	Wolcott	1936
	---; Feb.-Aug., Nov.-Dec.; 27	de la Barrera	1940
	---; in houses; 27°	de la Barrera & Arseno	1934
	---; ---; 27, 51, 53, 75, 82, 99, 129, 239, 240, 328 (On man)	Johnson	1957
	---; ---; 51°, 75°, 240°	Macchiavelli	1948
	---; common in regions of higher altitudes; 82°	Dunn	1929
	---; mountainous regions to 3500 meters; 99°	Leon	1949
	---; suspected vector of plague; 99	Eskey	1930
	---; Dec.-July; 99	Suarez	1942

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>PULEX</i>	---; ---; 128°	Bequaert	1938
<i>irritans</i>	---		
Linnaeus	---; ---; 204°	Roberts	1934
(cont.)	---		
	---; ---; 204	Hecht	1942
	---; ---; 223	Woke	1947
	---; in human dwellings; 237°	Dunn	1923
	---; experimentally infected with and experimental transmission of plague; 240	Long	1935
	---; floors of houses, patients' clothes; 240	Macchiavello	1946
	---; in human beds; 240	Jordan	1950
	---; in sleeping bag; 240	Wagner	1937
<i>irritans</i>	---		
<i>bahiensis</i>	---; ---; 53°	de Almeida Cunha	1915
Cunha	---		
	---; ---; 53	da Costa Lima & Hathaway	1946
<i>irritans</i>	---		
<i>dyessii</i>	---; ---; 204	da Costa Lima & Hathaway	1946
Baker	---		
<i>irritans</i>	---		
<i>irritans</i>	---; ---; 51°, 75°, 99°, 240°	Macchiavello	1948
Linnaeus	---		
<i>vespertilionis</i>	---; ---; 53	Ronna	1924
Duges	---		
<i>RHOPALOPSYLLUS</i>	---		
<i>zoodontis</i>	---; ---; 27°	Jordan & Rothschild	1923
Jordan & Rothschild	---		
<i>adelus</i>	---; ---; 53	da Costa Lima	1943
Jordan & Roths.	---		
<i>agilis</i>	---; ---; 53	da Costa Lima	1943
Prado	---		
<i>atopus</i>	---; ---; 27, 53	Jordan & Rothschild	1923
Jordan & Rothschild	---		
<i>australis</i>	---; ---; 53	Strong et al.	1926
Rothschild	---		
	---; ---; 69, 352	Jordan & Rothschild	1923
	---; ---; 129	Cleare	1919

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>RHOPALOPSYLLUS</i> <i>australis</i> <i>australis</i> (Rothschild)	---; ---; 82, 329	da Costa Lima & Hathaway	1946
	---; May; 204. ---; ---; 237, 328	Johnson	1957
	---; ---; 238	Jordan & Rothschild	1923
<i>australis</i> <i>tamoyus</i> Jordan & Rothschild	---; ---; 53, 82, 237, 239	da Costa Lima & Hathaway	1946
	---; caves; 238	Fairchild	1943
<i>australis</i> <i>tupiniquinus</i> Guimarães	---; Dec.; 53	Johnson	1957
<i>australis</i> <i>tupinus</i> Jordan & Rothschild	---; ---; 51, 53, 240	Johnson	1957
	---; ---; 53, 237	da Costa Lima & Hathaway	1946
<i>axius</i> Jordan & Rothschild	---; ---; 27	Jordan & Rothschild	1923
<i>bernhardi</i> Jordan & Rothschild	---; ---; 82, 239	Jordan & Rothschild	1923
<i>bohlei</i> Wagner	---; ---; 27, 239	Jordan & Rothschild	1923
<i>bohlei</i> var. <i>jordani</i> Costa Lima	---; ---; 53	Necht	1942
<i>byturus</i> Jordan & Rothschild	---; ---; 27	Necht	1942
<i>occious</i> Jordan & Rothschild	---; ---; 237, 240, 329	Jordan & Rothschild	1923
<i>occious</i> <i>occious</i> Jordan & Rothschild	---; ---; 240	Johnson	1957
<i>occious</i> <i>sensu</i> Jordan & Rothschild	---; ---; 82, 128, 237, 328, 329	Johnson	1957

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>Rhopalosyllus</i> <i>callens</i> Jordan & Rothschild	---; ---; 27	Jordan & Rothschild	1922
<i>caviicola</i> (Weyenberg)	---; ---; 27, 352. ---; Dec.-Feb.; 99 ---; ---; 51	Eskey Jordan & Rothschild	1930 1923
	---; experimentally infected with plague, in clothing and bedding; 240	Long	1935
<i>oleophontis</i> (Rothschild)	---; ---; 53	Strong et al.	1926
<i>cryptotenues</i> (Enderlein)	---; ---; 237	Fairchild	1943
<i>crypturi</i> Wagner	---; March, Oct.; 53	Johnson	1957
<i>dumii</i> Jordan & Rothschild	---; ---; 237, 238	Jordan & Rothschild	1922
<i>garbei</i> Guimarães	---; ---; 53	Johnson	1957
<i>klagesi</i> Rothschild	---; ---; 53, 237, 328	Jordan & Rothschild	1923
<i>klagesi</i> <i>somaliæ</i> Jordan & Rothschild	---; ---; 237 ---; ---; 238, 328	Fairchild Jordan & Rothschild	1943 1923
<i>litargus</i> Jordan & Rothschild	---; ---; 99, 240	Jordan & Rothschild	1923
<i>lugubris</i> Jordan & Rothschild	---; ---; 51, 53, 82, 129 ^a , 239, 240 ---; caves; 238 ---; ---; 328	Jordan & Rothschild Fairchild Jordan	1923 1943 1931 b
<i>lugubris</i> <i>cryptotenues</i> (Enderlein)	---; ---; 82, 237	Johnson	1957

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>RHOPALOPSYLLUS</i>			
<i>lugubris</i> Jorden & Rothschild	---; ---; 51, 53, 240, 328	Johnson	1957
<i>lutsi</i> Baker	---; ---; 27, 239	Jordan & Rothschild	1923
<i>lutsi</i> <i>oleophontis</i> (Rothschild)	---; ---; 27, 53, 239	da Costa Lima & Mathaway	1946
<i>lutsi</i> <i>lutsi</i> (Baker)	---; ---; 27, 53, 239	da Costa Lima & Mathaway	1946
<i>mesus</i> Wagner	---; ---; 85	da Costa Lima & Mathaway	1946
<i>occidentalis</i> (Cunha)	---; ---; 27	Hecht	1942
<i>palpalis</i> Rothschild	---; ---; 27	Jordan & Rothschild	1923
<i>platensis</i> Jorden & Rothschild	---; ---; 27, 325	Jordan & Rothschild	1923
<i>platensis</i> <i>ciscandinus</i> Jorden	---; Jan.-April; 27	Jordan	1939
<i>platanensis</i> Wagner	---; ---; 53	Wagner	1936
<i>roberti</i> Rothschild	---; ---; 53, 82, 99, 328	Jordan & Rothschild	1923
	---; near house; 240	Wagner	1937
<i>stegatus</i> Jorden & Rothschild	---; ---; 328	Jordan & Rothschild	1923
<i>subtilis</i> Jorden & Rothschild	---; ---; 27	Jordan & Rothschild	1923
<i>truncatus</i> (Guimerães)	---; ---; 82	Guimerães	1936
<i>REYCHOPSYLLUS</i>			
<i>pulex</i> Muller	---; ---; 27, 51, 53, 75, 82, 99, 240, 328	Johnson	1957

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>ROTHSCHILDELLA</i> <i>occidentalis</i> Cunha	---; ---; 53	Jordan & Rothschild	1923
<i>ROTHSCHILDOPSYLLA</i> <i>noctilionis</i> (Costa Lima)	---; ---; 53	Johnson	1957
<i>SPHINCTOPSYLLA</i> <i>ares</i> (Rothschild)	---; ---; 27. ---; Feb.; 75	Johnson	1957
<i>diomedes</i> Johnson	---; bank of river; 82	Johnson	1957
<i>inoa</i> (Rothschild)	---; ---; 99. ---; at 12,500 feet elevation; 240	Johnson	1957
<i>mare</i> (Rothschild)	---; ---; 27	Johnson	1957
<i>spillmanni</i> Jordan	---; Sept.; 99	Johnson	1957
<i>tolmera</i> (Jordan)	---; ---; 82, 99	Johnson	1957
<i>STENOPSYLLA</i> <i>crusi</i> Cunha	---; ---; 53	de Almeida Cunha	1915
<i>STEPHANOCIRCUS</i> <i>wolffhuegeli</i> Rothschild	---; April; 27	Uriarte et al.	1934
<i>STERNOPSYLLA</i> <i>cunhai</i> Pinto	---; ---; 53	Pinto	1926
<i>distineta</i> (Rothschild)	---; ---; 53, 75, 239	da Costa Lima & Hathaway	1946
<i>distineta</i> <i>distineta</i> (Rothschild)	---; ---; 53, 239	Johnson	1957
<i>distineta</i> <i>speciosa</i> Johnson	---; at 1,350 meters elevation, Nov.; 82. ---; ---; 240	Johnson	1957
<i>distineta</i> <i>texana</i> (Fox)	---; ---; 204	Johnson	1957
<i>texana</i> (Fox)	---; ---; 204	da Costa Lima & Hathaway	1946
	---; ---; 240	Macchiavello	1948

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>SYNOSTERNUS</i>			
<i>pallidus</i> (Taschenberg)	---; ---; 53	da Costa Lima	1943
<i>pallidus</i> <i>pallidus</i> (Taschenberg)	---; ---; 53	da Costa Lima & Hathaway	1946
<i>TETRAPSILLUS</i>			
<i>amplus</i> (Jordan & Rothschild)	---; ---; 27, 75	da Costa Lima & Hathaway	1946
<i>bleptus</i> (Jordan & Rothschild)	---; ---; 27	da Costa Lima & Hathaway	1946
	---; at 16,000 feet elevation, Oct.; 240	Traub	1952
<i>comis</i> Jordan	---; ---; 99	Jordan	1931 a
<i>corfidii</i> (Rothschild)	---; ---; 75	Johnson	1957
<i>elutus</i> Johnson	---; at 14,300 feet elevation, Feb.; 240	Johnson	1957
<i>litis</i> Jordan	---; ---; 75	Jordan	1936
<i>rhombus</i> Smit	---; July; 27. ---; ---; 75	Johnson	1957
<i>tantillus</i> (Jordan & Rothschild)	---; Jan.; 27	Johnson	1957
<i>tristis</i> Johnson	---; at 13,700 feet elevation, Feb.; 240	Johnson	1957
<i>TIAMASTUS</i>			
<i>callens</i> (Jordan & Rothschild)	---; Feb.-Aug., Nov.-Dec.; 27	de la Barrera	1940
	---; at 1,000 meters elevation; 27	Johnson	1957
<i>navicola</i> (Weyenbergh)	---; ---; 27, 51, 75°, 99, 240°	Johnson	1957
	---; ---; 53, 75	da Costa Lima & Hathaway	1946
	---; vector capacity for plague; 99	Macchiavello	1954
	---; ---; 99°	Macchiavello	1948
	---; in human beds; 240	Jordan	1950

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TIANASTUS</i>			
<i>longinasus</i> Jordan	---; ---; 27	Johnson	1957
<i>palpalis</i> (Rothschild)	---; Aug.; 27	Johnson	1957
<i>plesius</i> Jordan	---; ---; 27	Johnson	1957
<i>subtilis</i> (Jordan & Rothschild)	---; at 900 meters elevation, Jan.; 27	Johnson	1957
<i>TIARAPSYLLA</i>			
<i>argentina</i> Jordan	---; ---; 27	Johnson	1957
<i>bella</i> Johnson	---; Sept.; 240	Johnson	1957
<i>titschaeki</i> Wagner	---; at 4,000 feet elevation, April; 240	Johnson	1957
<i>TRICHOPSYLLA</i>			
<i>apollinaris</i> (Jordan & Rothschild)	---; ---; 82	da Costa Lima & Hathaway	1946
<i>companioner</i> (Jordan)	---; ---; 99	da Costa Lima & Hathaway	1946
<i>dolens</i> <i>dolens</i> (Jordan & Rothschild)	---; ---; 85	da Costa Lima & Hathaway	1946
<i>dolens</i> <i>quitanus</i> (Jordan)	---; ---; 99	da Costa Lima & Hathaway	1946
<i>equatoris</i> (Jordan)	---; ---; 99	da Costa Lima & Hathaway	1946
	---; ---; 240*	Macchiavello	1948
<i>graphis</i> (Rothschild)	---; ---; 223	da Costa Lima & Hathaway	1946
<i>intermedia</i> <i>intermedia</i> Wagner	---; ---; 53	da Costa Lima	1943

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TRICHOPSYLLA</i> <i>jordani</i> (Fox)	---; ---; 204	da Costa Lima & Hathaway	1946
<i>munda</i> (Jordan & Rothschild)	---; ---; 204	da Costa Lima & Hathaway	1946
<i>wagneri</i> <i>wagneri</i> (Baker)	---; ---; 204	da Costa Lima & Hathaway	1946
<i>TRITOPSYLLA</i> <i>intermedia</i> <i>cophn</i> (Jordan)	---; ---; 53, 82, 99, 237	da Costa Lima & Hathaway	1946
	---; ---; 85	Jordan	1950
<i>intermedia</i> <i>intermedia</i> (Wagner)	---; ---; 53, 82, 85, 99, 239	da Costa Lima & Hathaway	1946
<i>intermedia</i> <i>oxyura</i> (Jordan)	---; ---; 328	da Costa Lima & Hathaway	1946
<i>intermedia</i> <i>vidus</i> (Jordan)	---; ---; 204	da Costa Lima & Hathaway	1946
<i>TUNGA</i> <i>dondari</i> Wagner	---; ---; 53	Johnson	1957
<i>caecata</i> (Enderlein)	---; ---; 53	Johnson	1957
<i>penetrans</i> (Linnaeus)	---; clay soil under houses; 22°	Wolcott	1936
	---; ---; 27, 53, 75, 82, 99, 129, 239, 297	Johnson	1957
	---; ---; 53°	Costa	1945
	---; ---; 75°, 99°, 240°	Macchiavello	1948
	---; ---; 128°	Bequaert	1938
	---; ---; 137	Root	1924
	---; ---; 204**	Acosta Bayardo	1948
	---; ---; 204	Sharif	1930
	---; ---; 237°	Fairchild	1943
	---; floors of houses; 240	Macchiavello et al.	1946

TABLE 1 - FLEAS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TUNGA</i>	---; ---; 297°	Stage	1947
<i>penetrans</i> (Linnaeus) (cont.)	---; ---; 328°	Fiascon	1943
	---; ---; 347	da Costa Lima & Hathaway	1946
<i>terasma</i> Jordan	---; ---; 53	Johnson	1957
<i>travassosi</i> Pinto & Dreyfus	---; ---; 53	Johnson	1957
<i>XENOPSYLLA</i>	---; ---; 75°	Macchiavello	1948
<i>astia</i> Rothschild	---; ---; 75	Johnson	1957
<i>brasiliensis</i> (Baker)	---; ---; 53*, 328*	Hecht	1942
	---; at 1600 meters elevation; 328	Anduze	1942
	---; Feb.-March, May-Sept., Nov.; 328	Hecht	1943
<i>cheopis</i> (Rothschild)	---; ---; 18	Gutierrez	1912
	---; ---; 21	Gowley	1926
	---; ---; 22	Wolcott	1936
	---; all year, abundant in March-Sept.; 23	Carnes	1931
	---; ---; 24	King	1913
	---; important vector of plague, all year; 27*	Uriarte et al.	1934
	---; in houses; 27°	Savino	1934
	---; ---; 27, 51, 53, 82, 99, 129, 239, 297	Johnson	1957
	---; ---; 53*	da Costa Lima	1943
	---; experimental transmission of typhus; 75	Macchiavello	1942
	---; ---; 75°	Macchiavello	1948
	---; wooden buildings, Jan.-Dec.; 99*	Eskey	1930
	---; below 1200 meters altitude; 99°	Leon	1949
	---; ---; 137	Root	1924

TABLE 1 - FLEAS (conclusion)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>XENOPSYLLA</i> <i>chaoi</i> (Rothschild) (cont.)	---; common, experimentally infected with <i>Rickettsia prowaseki</i> ; 204	Mooser & Castaneda	1932
	---; in markets, June; 204	Hoffmann	1948
	---; ---; 237, 238	Dunn	1923
	---; in clothing and bedding; 240	Long	1935
	---; ---; 240**	Macchiavelli et al.	1946
	---; April-Sept.; 328	Hecht	1943
	---; ---; 328*	Hecht	1942

TABLE 2 - SUMMARY OF DISEASES OR DISEASE ORGANISMS TRANSMITTED BY
FLEAS

SPECIES	DISEASE ORGANISM				DISTRIBUTION
	VIRUS & RICKETTSIA	PROTOZOA	HELMINTHS	OTHER	
PULEX <i>irritans</i> Linnaeus				Plague	99
TRICHOPSYLLA <i>squatoris</i> Jordan				Bubonic plague	240
TUNGA <i>penetrans</i> Linnaeus				Dermatitis	204
XENOPSYLLA <i>brasiliensis</i> (Baker)				Plague	53, 328
<i>cheopis</i> (Rothschild)				Plague	27, 53, 99, 328
				Bubonic plague	240

LITERATURE CITED

- Acosta Bayardo, R.
1948. Informe preliminar acerca de infestación por niguas o *Tunga penetrans* en el Estado de Nayarit. *Medicina, Méx.* 28(558):251-253. (Abstract used).
- Anduze, P.J.
1942. Algunos datos sobre la biología de *Xenopsylla brasiliensis* Baker y morfología de la larva (Siphonaptera: Pulicidae). *Rev. Sanid. Asist. soc.* 7(6):825-827.
- Bacigalupo, J.
1932. *Ceratophyllus fasciatus*, Bosc, espontáneamente infectado con *Cercocystis Hymenolepis fraterna*, Bacigalupo. *Rev. chil. Hist. nat.* 36:144-147.
- Bequaert, J.C.
1938. Notes on the arthropoda of medical importance in Guatemala. *Publ. Carneg. Instn. no. 499.* 223-228. (Abstract used).
- Carnes, E.H.
1931. Rat-flea survey of the port of St. Thomas, Virgin Islands. *Publ. Hlth Rep., Wash.* 46(43):2558-2562.
- Cleare, L.D.
1919. Some parasites of man and animals in British Guiana. *Brit. Guiana med. Annu.* for 1919. pp. 58-77.
- Costa, O.G.
1945. An extensive case of chigoe infestation (Dermatophylia). *J. trop. Med. (Hyg.).* pp. 121-122.
- da Costa Lima, A.
1943. *Insetos do Brasil.* 4^o Tomo. Panorpatos - Suctofios (pulgas)-Neuropteros-Tricópteros. Rio de Janeiro, Escola nac. Agron. 141 p.
- _____. & C.R. Hathaway
1946. *Pulgas: Bibliografía, catalogo e hospedadores.* Monogr. Inst. Osw. Cruz. no. 4. 522 p.
- Dampf, A.
1925. Ectoparasitos del perro, colectados en los meses de Julio a Noviembre de 1924 por el Servicio de Desinfección y Desinsectización del Departamento de Salubridad Publica de Mexico. *Bol. Dep. Salubr. publ. Mex.* no. 2. 33-42.
- de Almeida Curha, R.
1915. Contribuição para o conhecimento dos sifonapteros brasileiros. *Mem. Inst. Osw. Cruz.* 6(2):125-136.
- de la Barrera, J.M.
1940. Estudios sobre peste selvatica en Mendoza. *Rev. Inst. bact., B. Aires.* 9(5):565-586.
- _____. & M. Arseno
1934. Brote de Peste en la prov. de Cordoba. *Rev. Inst. bact., B. Aires.* 6(3):330-341
- Dunn, L.H.
1923. Fleas of Panama, their hosts, and their importance. *Amer. J. trop. Med.* 3(4):335-344.
- _____.
1929. Notes on some insects and other Arthropods affecting man and animals in Colombia. *Amer. J. trop. Med.* 9(6):493-508.
- _____.
1934. Prevalence and importance of the tropical warble fly, *Dermatobia hominis* Linn., in Panama. *J. Parasit.* 20(4):219-226.

- Rekey, C.R.
1930. Chief etiological factors of plague in Ecuador and the antiplague campaign. Publ. Hlth Rep., Wash. 45(36):2077-2115.
- Rapinosa-Tamayo, L.
1917. Über die pathologische Geographie von Ecuador. Arch. Schiffs-u. Tropenhyg. 21(17):285-291.
- Fairchild, G.B.
1943. An annotated list of the bloodsucking insects, ticks and mites known from Panama. Amer. J. trop. Med. 23(6):569-591.
- Piasson, R.
1943. Notes sur les parasites animaux du Haut-Apure(Venezuela). Rev. Sci. méd. Afr. franc. Lib. 2(2):125-151. (Abstract used).
- Gowdey, C.C.
1926. Catalogus insectorum jamaicensis. Ent. Bull., Jamaica. 4(1-2):114 p.
- Guimarães, L.R.
1936. Notas sobre Siphonapteros com a descrição de uma nova especie. Arch. Hyg., S. Paulo. 2:141-143. (Abstract used).
- Guiteris.
1912. Bubonic plague in Havana. J. Amer. med. Ass. 1912. In: Rev. appl. Ent. 1:7. 1913.
- Hecht, O.
1942. Las pulgas de las ratas en Venezuela (nota preliminar). Rev. Sanid. Asist. soc. 7(6):811-820.
- 1943. Consideraciones entomológicas a la epidemiologia de la peste bubónica de los roedores en Venezuela. Rev. Sanid. Asist. soc. 8(6):1159-1162.
- Hoffmann, Anita
1948. Breve nota acerca de los ectoparasitos de ratas colectadas en los mercados del Distrito Federal. Rev. Inst. Salubr. Enferm. trop., Méx. 9(2):81-85.
- Hoskins, M.
1934. An attempt to transmit yellow fever virus by dog fleas (*Ctenocephalides canis* Curt.) and flies (*Stomoxys calcitrans* Linn.). J. Parasit. 20(3):299-303.
- Hubbard, C.A.
1947. Fleas of western North America. Their relation to the public health. Ames, Iowa, Iowa St. Coll. Press. 533 p.
- Hutson, L.R.
1943. Miscellaneous veterinary research in Antigua, B.W.I. Part I. Studies on Manson's eye worm in poultry. Part II. Studies on canine filariasis. Thesis University of Toronto. 32 p. (Abstract used).
- Isaac Rias, R.
1948. Aspectos epidemiológicos de la peste en Venezuela. Arch. venez. Pat. trop. 1(1):93-110.
- Johnson, P.T.
1957. A classification of the Siphonaptera of South America with descriptions of new species. Mem. ent. Soc. Wash. no. 5. 299 p.
- Jordan, K.
1931. Three new South American fleas. Revit. zool. 36(3):311-316.
- 1931a. Further records and descriptions of fleas from Ecuador. Revit. zool. 37(1):135-143.

- Jordan, K.
1931b. Flöhe aus Venezuela. Z. Parasitenk. 3(2):264-266.
- 1933. Four new fleas collected by Professor F. Spillmann in Ecuador. Novit. zool. 38(2):343-348.
- 1936. Some Siphonaptera from South America. Novit. zool. 39(4):305-310.
- 1939. On five new Siphonaptera from the Republic of Argentina. Novit. zool. 41:292-303.
- 1942. On the Siphonaptera collected by Dr. J.M. de la Barrera in the province of Mendoza during 1939. Rev. Inst. bact. "Dr. Carlos G. Malbran." B. Aires. 10(4):401-460.
- 1950. Notes on a collection of fleas from Peru. Bull. World Hlth Org. 2(4):597-609.
- & H.C. Rothschild
1920. On the species and genera of Siphonaptera described by Kolenati. Ectoparasites. 1(2):61-125.
- & —
1921. New genera and species of bat-fleas. Ectoparasites. 1(3):142-162.
- & —
1921a. Eight new Ceratophylli. Ectoparasites. 1(3):163-177.
- & —
1921b. On *Ceratophyllus fasciatus* and some allied Indian species of fleas. Ectoparasites. 1(3):178-198.
- & —
1922. New Siphonaptera. Ectoparasites. 1(4):266-283.
- & —
1923. On the genera *Rhopalopsyllus* and *Paropsyllus*. Ectoparasites. 1(5):320-370.
- King, A.
1913. Report of the medical officer of the second division for the year 1912-1913. Ann. Rept. on the Hospitals and Dispensaries, St. Lucia, Castries, July 1913. (Abstract used). In: Rev. appl. Med. 2:13. 1914.
- Leon, L.A.
1949. El clima y las enfermedades tropicales del altiplano ecuatoriano. Rev. Kuba Med. trop. 5(1-2):4-8.
- Long, J.D.
1935. Bubonic plague on the West Coast of South America in 1934. Publ. Hlth Rep., Wash. 50(29):923-932.
- Marchiavello, A.
1942. Investigations of Chilean exanthematic typhus and experimental exanthematic typhus. Proc. 6th Pacif. Sci. Congr. 5:649-675.
- 1948. Siphonaptera de la costa sur-occidental de America. (Primera lista y distribucion zoo-geografica.) Bul. Ofic. sanit. pan-am. 27(5):412-460.

Macchiavello, A.

1954. Reservoirs and vectors of plague. *J. trop. Med. Hyg.* 57(1-12):3-8, 45-48, 65-69, 87-94, 116-121, 139-146, 158-171, 191-197, 220-224, 238-243, 275-279, 294-298.

—, B. Mostajo & B. Mostajo hijo

1946. Control de una epidemia de peste bubónica con DDT y "1080". *Bol. Ofic. Sanit. pan-am.* 25(12):1097-1100.

Mooser, H. & M.R. Castaneda

1932. The multiplication of the virus of Mexican typhus fever in fleas. *J. exp. Med.* 55(2):307-323.

Patino-Camargo, L.

1940. Arthropods Hematofagos de la fauna Columbiana. *Rev. Acad. Colomb.* 3(11):337-344.

Pessoa, S.B.

1935. Infestação natural da pulga do rato *Ctenopsyllus mascoui* pelo *Cysticercoides* da *Hyalomolopia diminuta*. *Folia clin. biol.*, S. Paulo. 7(3):101-102. (Abstract used).

Pinto, C.

1926. Estudos sobre siphonapteros ou "pulgas," *Stenopsylla oshai* n.sp. *Bol. Instit. brasil. Scien.* 1(3):3-7. (Abstract used).

—, J. de Barros Barreto & A. Fialho

1928. Sobre a frequencia das especies de pulgas de ratos, verificados no Rio de Janeiro. *Sci. med.*, Rio de J. 6(3):110-116. (Abstract used).

Rayne, A.

1923. Verslag van den entomoloog. Versl. 1922 Dep. Landb. Suriname. pp. 32-39.

Roberts, R.A.

1934. Some insects collected in Mexico, mostly in association with man and animals or animal products. *J. N.Y. ent. Soc.* 42(3):249-262.

Root, F.W.

1924. Notes on blood-sucking Arthropods collected at Tela, Honduras, and Port Limon, Costa Rica, during the summer of 1924. *Rep. med. De. un. Fruit Co.* pp. 207-209. (Abstract used).

Ronna, E.

1924. Apontamentos de Microfauna Rio-Grandense. IV. Serie - Suctoria (Pulgas). V. Dipteros. Egatas. 9(2-3):142-143. (Abstract used).

Russo, G.

1927. Informe de entomologia agricola dominicana. *Infme. Secc. Ent. Estac. nac. agron. Moca.* 2:33-244. (Abstract used).

Saunders, P.T.

1914. Notes on some parasites of live stock in the West Indies. *W. Ind. Bull.* 14(2):132-138. (Abstract used).

Javino, E.

1934. Tres brotes pestoceros en las provincias de Salta, Jujuy y San Luis. *Rev. Inst. bact.*, B. Aires. 6(2):99-129.

—, & M.A. Riesel

1942. Casos de peste en la provincia de Jujuy. *Bol. sanit. Dep. nac. Hig.*, B. Aires. 6(7-9):375-389. (Abstract used).

Sharif, M.

1930. A revision of the Indian Siphonaptera. Part I. Family Pulicidae. *Rec. Ind. Mus.* 32(1):29-62.

- Strong, R.P., G.C. Shattuck, J.C. Bequaert & R.E. Wheeler
 1926. Medical report of the Hamilton Rice seventh expedition to the Amazon, in conjunction with the Department of Tropical medicine of Harvard University, 1924-1925. Contr. Harv. Inst. trop. Biol. Med. no. IV. 313 p.
- Stage, H.H.
 1947. DDT to control insects affecting man and animals in a tropical village. J. econ. Ent. 40(6):759-762.
- Suarez, P.A.
 1942. Plague in the Province of Chimborazo, Ecuador. Proc. 6th Pacif. Sci. Cong. 5:115-123.
- Traub, R.
 1951. Fleas collected by the Chicago Natural History Museum Expedition to the Philippines, 1946-1947. Proc. biol. Soc. Wash. 64:1-24.
- 1952. Records and descriptions of fleas from Peru. Proc. ent. Soc. Wash. 54(1):1-22.
- Uriarte, L & others.
 1934. Pulgas y peste. Rev. Inst. bact., B. Aires. 6(2):57-96.
- Veintemillas, F.
 1936. Le typhus exanthématique de l'"altiplano" (Bolivie). Abst. in Bull. Off. int. Hyg. publ. 28(7):1377-1379. (Abstract used).
- Wagner, J.
 1936. Einige neue oder wenig bekannte Floharten. Z. Parasitenk. 9(3):332-350.
- 1937. Aphaniptera aus Süd-Peru sowie Bemerkungen über die Familie Stephanocircidae Wagn. Ausbeute der Peru-Reise von Prof. Dr. E. Titschack (Hamburg) im Jahre 1936. Z. Parasitenk. 9(6):698-716.
- Woke, P.A.
 1947. Arthropods of sanitary importance in the Republic of Nicaragua, Central America. Amer. J. trop. Med. 27(3):357-375.
- Wolcott, G.H.
 1936. "Insectae Borinquenses." A revised annotated check list of the insects of Puerto Rico with a host-plant index by J.I. Otero. J. Agric. Univ. P.R. 20(1):1-627.

I. BUGS

Bugs or Hemiptera are common pests of man in Latin America. Most of the species recorded belong to the family Reduviidae which includes the important vectors of Chagas disease.

The tables include 70 species or subspecies.

TABLE 1 - BUGS

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>APHEIONCTUS</i> <i>simplus</i> Uhler	---; attracted to light; 53°	Strong et al.	1926
<i>CAVERNICOLA</i> <i>pilosa</i> Barber	---; naturally infected with <i>Trypanosoma cruzi</i> ; 53	Usinger	1944
<i>CIMEX</i> <i>foedus</i> (Stål)	---; ---; 53, 82 (Bite man)	Da Costa Lima	1940
<i>hemipterus</i> (F.)	---; in houses; 53	Strong et al.	1926
	---; ---; 53°	Da Costa Lima	1940
	---; in houses; 82	Patino et al.	1937
	---; in houses; 223	Woke	1947
	---; common in houses; 237	Fairchild	1943
<i>lectularius</i> Linnaeus	---; naturally infected with <i>Rickettsia</i> ; 53	Magalhaes	1944 +
	---; in houses; 328°	Martorell	1939
<i>rotundatus</i> Signoret	---; in houses; 82	Dunn	1929
	---; experimentally infected with relapsing fever; 237	Dunn	1923
<i>DIPETALOGASTER</i> <i>maximus</i> (Uhler)	---; naturally infected with <i>Trypanosoma cruzi</i> ; 204	Neiva & Lent	1941
<i>ERATYRUS</i> <i>cuspidatus</i> Stål	---; ---; 53*, 82*, 328*	Chagas	1935
	---; naturally infected with <i>Trypanosoma cruzi</i> ; 237, 329	Neiva & Lent	1941
	---; ---; 325°	Vellard	1937
<i>EUTRIATOMA</i> <i>flavida</i> (Neiva)	---; experimentally infected with <i>Trypanosoma</i> <i>cruzi</i> ; 18	Neiva & Lent	1941
<i>maculata</i> (Erichson)	---; naturally infected with <i>Trypanosoma cruzi</i> ; 53, 328	Neiva & Lent	1941
<i>nigromaculata</i> (Stål)	---; naturally and experimentally infected with <i>Trypanosoma cruzi</i> ; 328	Neiva & Lent	1941
<i>oswaldsi</i> Neiva & Pinto	---; in houses, naturally infected with <i>Trypanosoma cruzi</i> ; 27°	Mazza & Paterson	1938

TABLE 1 - BUGS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>EUTRIATOMA patagonica</i> Del Ponte	---; experimentally infected with <i>Trypanosoma cruzi</i> ; 27	Neiva & Lent	1941
	---; naturally infected with <i>Trypanosoma cruzi</i> ; 27	Massa et al.	1941
<i>rubrovaria</i> (Blanchard)	---; naturally infected with <i>Trypanosoma cruzi</i> ; 325	Neiva & Lent	1941
<i>sordida</i> (Stål)	---; in houses; 27*	Massa et al.	1940
	---; in houses; 53	Lent & Martins	1940
	---; naturally infected with <i>Trypanosoma cruzi</i> ; 53	Neiva & Lent	1941
<i>HAEMATOSIPHON inordinata</i> Duges	---; in houses; 204*	Nunez Andrade	1946
<i>LETHOCERUS annulipes</i> (H & S)	---; ---; 223*	Woke	1947
<i>NESTOR rufotuberculatus</i> (Champ.)	---; naturally infected with <i>Trypanosoma cruzi</i> ; 328	Usinger	1944
<i>NEOTRIATOMA circummaculata</i> (Stål)	---; naturally infected with <i>Trypanosoma cruzi</i> ; 325	Massa et al.	1942
	---; naturally infected with <i>T. cruzi</i> ; 328	Neiva & Lent	1941
<i>NESOTRIATOMA flavida</i> (Neiva)	---; occasionally enter houses at night; 18	Hoffmann	1939
	---; experimentally infected with <i>Trypanosoma cruzi</i> ; 18	Neiva & Lent	1941
<i>PANSTRONGYLUS diasi</i> Pinto & Lent	---; naturally infected with <i>Trypanosoma cruzi</i> ; 53	Pellegrina	1948 +
<i>geniculatus</i> (Latreille)	---; in houses, naturally infected with <i>Trypanosoma cruzi</i> ; 51	Massa & Chacon	1943
	---; in houses; 53*	Chagas	1935
	---; naturally infected with <i>T. cruzi</i> ; 53, 237, 328	Neiva & Lent	1941
	---; caves, in houses, naturally infected with <i>T. cruzi</i> ; 237	Fairchild	1943
	---; ---; 328*	Ballou	1945

TABLE 1 - BUGS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>PANSTRONGYLUS</i>			
<i>lignarius</i> (Walker)	---; naturally infected with <i>Trypanosoma cruzi</i> ;	Deane & Damasceno	1949
<i>magistus</i> (Burmeister)	---; in houses; 53*	Lent & Martins	1940
	---; naturally infected with <i>Trypanosoma cruzi</i> ; 53, 239	Neiva & Lent	1941
	---; ---; 53°	Romana	1947
	---; ---; 240*	Yorke	1920
<i>rufotuberculatus</i> Champion	---; naturally infected with <i>Trypanosoma cruzi</i> ; 328	Neiva & Lent	1941
<i>PARABELMINUS</i>			
<i>cariooa</i> Lent	---; naturally infected with <i>Trypanosoma cruzi</i> ; 53	Mery Guimaraes & Jansen	1943
<i>PSAMMOLESTES</i>			
<i>arthuri</i> (Pinto)	---; naturally and experimentally infected with <i>Trypanosoma cruzi</i> ; 328	Neiva & Lent	1941
<i>coreodes</i> Bergroth	---; experimentally infected with <i>Trypanosoma</i> <i>cruzi</i> ; 27, 53	Neiva & Lent	1941
	---; naturally infected with <i>T. cruzi</i> ; 53	Pellegrino	1948 +
<i>RASAHUS</i>			
<i>biguttatus</i> (Say)	---; ---; 18°	Hoffmann	1922
<i>RHODNIUS</i>			
<i>brethesia</i> da Matta	---; occasionally bites man; 53°	Strong et al.	1926
<i>brumpti</i> Pinto	---; naturally infected with <i>Trypanosoma cruzi</i> ; 53	Neiva & Lent	1941
<i>pallasoana</i> Barber	---; common, in houses, naturally infected with <i>Trypanosoma cruzi</i> ; 237, 238	Fairchild	1943
<i>piotipes</i> (Stål)	---; ---; 130**	Fleisch & De Lajudie	1945
<i>prolixus</i> Stål	---; ---; 18°, 328**	Hoffman	1922
	---; in houses; 53*	Chagas	1935
	---; ---; 53*	da Matta	1919
	---; naturally infected with <i>Trypanosoma cruzi</i> ; 82, 204, 328	Neiva & Lent	1941

TABLE 1 - BUGS (continued)

SPECIES	BREEDING HABITS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>RHODNIUS</i> <i>prolixus</i> Stål (cont.)	---; ---; 130*	Floch & del'Ajudie	1945
	---; enters houses, intermediate host of <i>Trypanosoma cruzi</i> ; 328	Brumpt & Gonzales- Lugo	1913
	---; naturally infected with <i>T. cruzi</i> ; 328	Ortiz	1944
	---; naturally infected with <i>T. rangeli</i> ; 328	Pifano	1949 +
	---; ---; 328*	Pifano	1941
<i>TRIATOMA</i> <i>arthurneivai</i> Lent & Martins	---; experimentally infected with <i>Trypanosoma</i> <i>cruzi</i> ; 53	Neiva & Lent	1941
<i>barberi</i> Usinger	---; naturally infected with <i>T. cruzi</i> ; 204	Neiva & Lent	1941
<i>brasiliensis</i> Neiva	---; in houses; 53*	Chagas	1935
	---; naturally and experimentally infected with <i>Trypanosoma cruzi</i> ; 53	Neiva & Lent	1941
<i>brasiliensis</i> <i>melanica</i> (Neiva & Lent)	---; naturally infected with <i>Trypanosoma cruzi</i> ; 53	Neiva & Lent	1941
<i>capitata</i> Usinger	---; experimentally infected with <i>Trypanosoma</i> <i>cruzi</i> ; 82	Iriarte	1943
<i>carriani</i> Larrousse	---; in houses by night, experimentally infected with <i>Trypanosoma cruzi</i> ; 99	Mazzotti & Leon	1942
<i>magasi</i> Brumpt & Gomez	---; naturally and experimentally infected with <i>Trypanosoma cruzi</i> ; 53	Neiva & Lent	1941
<i>dividiata</i> (Latreille)	---; ---; 69, 352 (in houses, bites man)	Strong et al.	1926
	---; naturally infected with <i>Trypanosoma cruzi</i> ; 128, 204, 237	Neiva & Lent	1941
	---; in houses; 204	Mazzotti	1940 +
	---; in houses; 237	Fairchild	1943
	---; naturally infected with <i>T. cruzi</i> ; 328	Risquez	1934
<i>dividiata</i> <i>maculipennis</i> (Stål)	---; naturally infected with <i>Trypanosoma cruzi</i> ; 204, 262	Neiva & Lent	1941

TABLE 1 - BUGS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TRIATOMA</i>	---		
<i>geniculata</i> (Latreille)	---; ---; 53*. ---; forest near shore; 82°, 237° ---; ---; 352°	Dunn Strong et al.	1929 1926
<i>gerstaeckeri</i> (Stål)	---; naturally infected with <i>Trypanosoma cruzi</i> ; 204	Meiva & Lent	1941
<i>infestans</i> (Klug)	---; enters houses; 27°, 51°, 53°, 75°, 239°, 240°, 262°, 325° ---; naturally infected with <i>Trypanosoma cruzi</i> ; 27*	Meiva Mazza et al.	1913 1940
	---; naturally infected with <i>T. rangeli</i> ; 27	Borsone	1949
	---; Nov.-Dec.; 27	Mazza & Paterson	1938
	---; ---; 27°, 53°, 75°, 239°, 325°	Romana	1947
	---; naturally infected with <i>T. cruzi</i> ; 51	Mazza & Chacon	1943 a
	---; naturally infected with <i>T. cruzi</i> ; 53, 75, 325	Meiva & Lent	1941
	---; ---; 53*	Chagas	1935
	---; experimentally infected with <i>T. rangeli</i> ; 85°	Zeledon	1954
	---; infected with <i>T. cruzi</i> ; 325°	Talica	1949
	---; naturally infected with <i>T. cruzi</i> ; 328	Risquez	1934
<i>longipennis</i> Usinger	---; naturally infected with <i>Trypanosoma cruzi</i> ; 204	Meiva & Lent	1941
<i>maculata</i> (Erichson)	---; in houses; 53*	Chagas	1935
	---; naturally and experimentally infected with <i>Trypanosoma cruzi</i> ; 53, 129, 328	Meiva & Lent	1941
	---; in houses, naturally and experimentally infected with <i>T. cruzi</i> ; 328°	Dias & Torrealba	1938
	---; ---; 328°	Sellou	1945
	---; in houses; 129	van der Kuyp	1949
<i>regista</i> de Geer	---; ---; 53*. ---; carrier of Chagas disease; 352°	Strong et al.	1926

TABLE 1 - BUGS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TRIATOMA</i> <i>nigromaculata</i> (Stål)	---; naturally and experimentally infected with <i>Trypanosoma cruzi</i> ; 328	Neiva & Lent	1941
<i>oswaldoi</i> Neiva & Pinto	---; in houses; 27	Massa & Jürg	1944
	---; naturally infected with <i>Trypanosoma cruzi</i> ; 27	Massa	1936
	---; naturally infected with <i>T. cruzi</i> ; 51	Massa & Chacon	1943
<i>pallidipennis</i> (Stål)	---; naturally infected with <i>Trypanosoma cruzi</i> , experimental transmission of Chagas' disease; 204	Harr & Brumpt	1939
<i>phyllosoma</i> (Burmeister)	---; in houses, naturally infected with <i>Trypanosoma cruzi</i> ; 204	Massotti	1940
<i>phyllosoma</i> <i>longipennis</i> Usinger	---; in houses, naturally infected with <i>Trypanosoma cruzi</i> ; 204	Massotti	1940
<i>phyllosoma</i> <i>pallidipennis</i> (Stål)	---; in houses, naturally infected with <i>Trypanosoma cruzi</i> ; 204	Massotti	1940 +
<i>phyllosoma</i> <i>picturata</i> Usinger	---; in houses, naturally infected with <i>Trypanosoma cruzi</i> ; 204	Massotti	1940 +
<i>picturata</i> Usinger	---; naturally infected with <i>Trypanosoma cruzi</i> ; 204	Neiva & Lent	1941
<i>platensis</i> Neiva	---; in houses; 27	Massa et al.	1941
	---; experimentally and naturally infected with <i>Trypanosoma cruzi</i> ; 27	Neiva & Lent	1941
<i>protracta</i> (Uhler)	---; naturally infected with <i>Trypanosoma cruzi</i> ; 328	Risques	1934
<i>protracta</i> <i>woodi</i> Usinger	---; naturally infected with <i>Trypanosoma cruzi</i> ; 204	Massotti	1947
<i>rosenbuschi</i> Massa	---; naturally infected with <i>Trypanosoma cruzi</i> ; 27	Massa	1936
<i>rubida</i> (Uhler)	---; in houses, naturally infected with <i>Trypanosoma cruzi</i> ; 204	Massotti	1940 +

TABLE 1 - BUGS (conclusion)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TRIATOMA</i> <i>rubrofasciata</i> (De Geer)	---; naturally infected with <i>Trypanosoma</i> <i>conorhini</i> ; 24	Floch	1967
	---; in houses; 53*	Chagas	1935
	---; naturally infected with <i>T. cruzi</i> ; 53	Usinger	1944
	---; naturally and experimentally infected with <i>T. cruzi</i> ; 130	Floch & De Lajudie	1945
<i>rubrovaria</i> (Blanchard)	---; experimentally infected with <i>Trypanosoma</i> <i>cruzi</i> ; 27, 53, 75, 325	Neiva & Lent	1941
	---; in houses; 53*	Chagas	1935
<i>sanguisuga</i> (Leconte)	---; naturally infected with <i>Trypanosoma cruzi</i> ; 328	Risques	1934
<i>sordida</i> (Stål)	---; in houses, naturally infected with <i>Trypanosoma cruzi</i> ; 27*. ---; in houses; 75	Neiva & Lent	1943 +
	---; experimentally infected with <i>T. cruzi</i> ; 27, 51, 75, 325. ---; naturally and experimentally with <i>Trypanosoma cruzi</i> ; 53	Neiva & Lent	1941
	---; in houses; 53*	Chagas	1935
	---; ---; 53*	Pellegrino & Borrotchin	1948 +
	---; naturally infected with <i>T. cruzi</i> ; 328	Risques	1939
<i>spinolai</i> Porter	---; naturally infected with <i>Trypanosoma cruzi</i> ; 75	Neiva & Lent	1941
<i>vitticeps</i> (Stål)	---; in houses; 53*	Chagas	1935
	---; naturally infected with <i>Trypanosoma cruzi</i> ; 53	Neiva & Lent	1941
	---; naturally infected with <i>T. cruzi</i> ; 328	Risques	1934
<i>TRIATOMATERN</i> <i>porteri</i> Neiva & Lent	---; naturally infected with <i>Trypanosoma cruzi</i> ; 75	Neiva & Lent	1941
<i>VEECIA</i> <i>minima</i> Fraser & & Bruner	---; attracted by light; 53*	Strong et al.	1926

TABLE 2 - SUMMARY OF DISEASES OR DISEASE ORGANISMS TRANSMITTED BY
BUGS

SPECIES	DISEASE ORGANISM				DISTRIBUTION
	VIRUS & RICKETTSIA	PROTOZOA	HELMINTHS	OTHER	
<i>ERATYRUS</i> <i>cuspidatus</i> Stål		Trypanosomiasis			53, 82, 328
<i>EUTRIATOMA</i> <i>sordida</i> (Stål)		<i>Trypanosoma</i> <i>cruxi</i>			27
<i>HAEMATOSIPHON</i> <i>inordora</i> Dager				Dermatitis	204
<i>PANSTRONGYLUS</i> <i>geniculatus</i> (Latreille)		Trypanosomiasis			53
<i>megistus</i> (Burmeister)		Chagas			328
		Chagas disease			53
		Trypanosomiasis			240
<i>RHODNIUS</i> <i>piotipes</i> Stål		<i>Trypanosoma</i> <i>cruxi</i>			130
<i>prolixus</i> Stål		Chagas disease			53, 328
		Trypanosomiasis			53 (Chagas 1935) 328 (Hoffman 1922)
		<i>Trypanosoma</i> <i>cruxi</i>			130
<i>TRIATOMA</i> <i>brasilensis</i> Meiva		Trypanosomiasis			53
<i>geniculata</i> (Latreille)		<i>Trypanosoma</i> <i>cruxi</i>			53
<i>infestans</i> (Klug)		Chagas disease			27, 53, 75, 239, 325
		<i>Trypanosoma</i> <i>cruxi</i>			27 325 (Tallice 1949)
		Trypanosomiasis			53
<i>maculata</i> (Erichson)		Trypanosomiasis			53
		Chagas disease fever			328

TABLE 2 - BUGS (conclusion)

SPECIES	DISEASE ORGANISM				DISTRIBUTION
	VIRUS & RICYETTSIA	PROTOZOA	HELMINTHS	OTHER	
<i>TRIATOMA</i> <i>megista</i> De Geer		Chagas fever			53
<i>rubrofasciata</i> (De Geer)		Trypanosomiasis			53
<i>rubrovaria</i> (Blanchard)		Trypanosomiasis			53
<i>sordida</i> (Stål)		<i>Trypanosoma</i> <i>cruxi</i>			53 +
		Trypanosomiasis			53
<i>vitticeps</i> (Stål)		Trypanosomiasis			53

LITERATURE CITED

- Ballou, C. M.
1945. Notas sobre insectos dañinos observados en Venezuela 1938-1943.
Cuad. verde Com. organ. 3a. Conf. interamer. Agric. no. 34. 151 p.
- Borzoni, R. A., P. Lapieza Cabral & M. Aizenberg
1949. Primera observacion Argentina de *Trypanosoma rangeli* (Tejera).
(Nota previa). (First Record of *Trypanosoma rangeli* (Tejera) in the
Argentina.). Sem. méd., B. Aires. 56(34):348-349.
- Brumpt, E. & Gonzalez-Lugo
1913. Un Réduvide du Venezuela, le *Rhodnius prolixus*, chez lequel evolue
Trypanosoma cruzi. Bull. Soc. Pat. exot. pp. 382-383.
- Chagas, E.
1935. Sumula dos conhecimentos actuaes sobre a Trypanosomiasis americana.
Mem. Inst. Osw. Cruz. 30(3):387-416.
- da Costa Lima, A.
1940. Insetos do Brasil. 2nd Tomo. Hemipteros. Escola Nacional De Agronomia.
no. 3. 351 p.
- da Matta, A.
1919. Un nouveau Réduvide de l'Amazonie, *Rhodnius brathesi*, sp. n. Bull. Soc.
Pat. exot. 12(9):611-612.
- Deane, M. P. & R. M. G. Damasceno
1949. Encontro do *Panstrongylus lignarius* naturalmente infectado por
trypanosoma do tipo "cruzi" e algumas notas sobre sua biologia.
Rev. Serv. Saude públ., Rio de J. 2(3):809-814. (Abstract used).
- Dias, E. & J. F. Torrealba
1938. Infecao natural do *Eutritoma maculata* pelo *Schizotrypanum cruzi*, no
Brasil e na Venezuela. Mem. Inst. Osw. Cruz. 33(2):249-252.
- Dunn, L. M.
1923. The tropical bedbug in relation to the transmission of relapsing fever
in Panama. Amer. J. trop. Med. 3(4):345-350.
- 1929. Notes on some insects and other arthropods affecting man and animals in
Colombia. Amer. J. trop. Med. 9(6):493-508.
- Fairchild, G. B.
1943. An annotated list of the bloodsucking insects, ticks and mites known from
Panama. Amer. J. trop. Med. 23(6):569-591.
- Floch, H.
1947. *Triatoma rubrofasciata* de Geer naturellement infecté par *Trypanosoma
donovani* (Donovan) en Guadeloupe. Publ. Inst. Pasteur Guyane.
no. 167. 3 p. (Abstract used).
- & P. De Lajudie
1945. Recherches sur la trypanosomiose humaine americaine en Guyane française.
Rhodnius prolixus et *Rhodnius pictipes* vecteurs naturels de choix de
S. cruzi. Publ. Inst. Pasteur Guyane. no. 117. 5 p. (Abstract used).

- Herr, A. & L. Brumpt
1939. Un cas aigu de maladie de Chagas contractée accidentellement au contact de triatomas mexicains: observation et courbe fébrile. Bull. Soc. Pat. exot. 32(5):565-571.
- Hoffmann, W. H.
1922. Sobre la presencia de *Rhodnius prolixus*, Stål, en Cuba y su importancia médica. Sanid. y Benefic. 7(5-6):261.
- 1939. Experiencias biológicas sobre los triatomas de Cuba. Rev. Med. trop., Habana. 5(5):267-272. (Abstract used).
- Iriarte, D. R.
1943. Infestacion Experimental por *S. cruzi* del *Triatoma capitata* Usinger 1939. Bol. Lab. Clin. Razetti. 3(10):179-180.
- Lent, H. & A. V. Martins
1940. Estudos sobre os Triatomídeos do Estado de Minas Gerais, com descrição de uma especie nova. Rev. Ent., Rio de J. 11(3):877-886.
- Magalhaes, O.
1944. Rickettsiasas no Brazil. Bol. Ofic. sanit. pan-amer. 41(10):343.
- Martorell, L. F.
1939. Insects observed in the State of Aragua, Venezuela, South America. J. Agric Univ. P. R. 23(4):177-232.
- Mazza, S.
1936. Investigaciones sobre la enfermedad de Chagas. Publ. Misión Estud. Patol. reg. argent. Jujuy. no. 26. 39 p.
- & R. V. Chacon
1943. Presencia de *Panstrongylus geniculatus* con infestación por *S. cruzi* en el oriente boliviano y otras informaciones relacionadas con la enfermedad de Chagas en esa región. Prensa méd. argent. 30(25):15. (Abstract used).
- & ———
1943a. Primeros animales domésticos y seres humanos con *Schizotrypanum cruzi* comprobados en Bolivia. Prensa méd. argent. 30(9):8. (Abstract used).
- & M. E. Jörg
1944. Estudios sobre Triatominae. Publ. Misión Estud. Patol. reg. argent. Jujuy. no. 67. 63 p.
- & G. C. Paterson
1938. Investigaciones sobre la enfermedad de Chagas II. Publ. Misión Estud. Patol. reg. argent. Jujuy. no. 34. 35 p.
- Mazza, S. & others.
1940. Investigaciones sobre enfermedad de Chagas. Publ. Misión Estud. Patol. reg. argent. Jujuy. no. 45. 1-34 p.
- , R. V. Talice & M. E. Jörg
1942. Investigaciones sobre Triatominae. Sobre *Triatoma (Neotriatoma) circummaculata* y *Triatoma (Eutriatoma) rubrovaria*. Publ. Misión Estud. Patol. reg. argent. Jujuy. no. 62. 52 p. (Abstract used).
- , S. Miyara, G. Basso & R. Basso
1941. Primer quinquenio de la investigación por la M.E.P.R.A. de la enfermedad de Chagas en la provincia de Mendoza. Publ. Misión Estud. Patol. reg. argent. Jujuy. 36 p.

- Mazzotti, L.
1940. Triatomides de Mexico y su infeccion natural por *Trypanosoma cruzi* Chagas. Medicina. 20(358):95-109.
- . 1947. Presencia en México de *Triatoma protracta woodi*, Usinger y de *Triatoma gerstaeckeri* (Stål). Rev. Inst. Salubr. Enferm. trop., Méx. 8(1):69-70.
- . & L. A. León
1942. Infección experimental por *Trypanosoma cruzi* de *Triatoma carrioni* del Ecuador. Medicina, Mex. 22(411):191-193. (Abstract used).
- Neiva, A.
1913. Informaçõs sobre a biologia da Vinchuca, *Triatoma infestans* Klug. Mem. Inst. Osw. Cruz. 5(1):24-31.
- . & H. Lent
1941. Sinopsis dos triatomídeos. Rev. Ent., Rio de J. 12(1-2):61-92.
- . & ———.
1943. Triatomídeos do Chile. Mem. Inst. Osw. Cruz. 39(1):43-75.
- Nery Guimaraes, F. & G. Jansen
1943. Novo transmissor silvestre do *Trypanosoma (Schizotrypanum) cruzi* (Chagas, 1909). Mem. Inst. Osw. Cruz. pp. 437-441. (Abstract used).
- Núñez Andrade, R.
1946. Dermatitis causada por *Haematosiphon inodora* (Dugès, 1892). Medicina, Mex. 26(501):45-51. (Abstract used).
- Ortiz, C. I.
1944. Contribución al estudio de la entomología médica del Estado Falcón. Bol. Lab. Clin. Razetti. 4(14):247-251.
- Patino, L., A. Afanador & J. H. Paul
1937. A spotted fever in Tobia, Colombia. Amer. J. trop. Med. 17(5):639-653.
- Pellegrino, J.
1948. Distribuicao e indice de infeccao dos triatomídeos transmissores da doenca de chagas no sudoeste de Minas Gerais. Rev. Brasileira Med., Rio de J. 5(8):555-566.
- . & M. Borrotchin
1948. Inquerito sobre doenca de Chagas no Hospital da Santa Casa de Misericórdia de Belo Horizonte (Minas Gerais, Brasil). Brasil-Medico. 62(36-37):314-315.
- Pifano, C. F.
1941. La enfermedad de Chagas en el estado Yaracuy, Venezuela. Gac. méd. Caracas. 48(3-7):201-206, 209-216, 220-227, 232-236, 244-246. (Abstract used).
- , M. Mayer, M. Rümer, E. Dominguez, R. Medina, & E. Benaím Pinto
1949. Estado actual de las investigaciones en Venezuela sobre una nueva trypanosomiasis humana de la region neotropica producida por el *Trypanosoma rangeli*. Arch. venez. Pat. trop. 1(2):135-152.
- Risquez, J. R.
1934. Tripanosomosis de los reduvídeos de Venezuela. Gac. méd. Caracas. 41(7):97-100. (Abstract used).
- Romana, C.
1947. Profilaxis de la enfermedad de Chagas (ideas generales sobre el tema). Bol. Ofic. sanit. Pan-amer. 26(11-12):936-942.

- Strong, R. P., G. C. Shattuck, J. C. Bequaert, & R. E. Wheeler
 1926. Medical report of the Hamilton Rice Seventh Expedition to the Amazon, in conjunction with the Department of Tropical Medicine of Harvard University, 1924-1925. Contr. Harv. Inst. trop. Biol. Med. no 4. 313 p.
- Talice, R. V.
 1949. The chagas disease of Uruguay. Trans. Roy. Soc. trop. Med. Hyg. 43(2):107-109.
- Usinger, R. L.
 1944. The triatominae of North and Central America and the West Indies and their public health significance. Publs publ. Hlth Serv., Wash. no. 288. 83 p.
- van der Kuyp, E.
 1949. Annotated list of mosquitoes of the Netherlands Antilles including French St. Martin with a note on *Eutriatoma maculata* on Curacao and Bonaire. Docum. neerl. indones. Mor. trop. 1(1):69-70.
- Vellard, J.
 1937. Arthropodes vésicants ou piqueurs connus sous le nom de *pitos* dans les Andes vénézuéliennes. Bull. Soc. Pat. exot. 30(10):878-884.
- Woke, P. A.
 1947. Arthropods of sanitary importance in the Republic of Nicaragua, Central America. Amer. J. trop. Med. 27(3):357-375.
- Yerke, W.
 1920. On human Trypanosomiasis in Peru. Ann. trop. Med. Parasit. 13(4):459-460. (Abstract used).
- Zeledon, R.
 1954. Tripanosomiasis rangeli. Revta Biol. trop. 2(2):231-268.

J. VERMICIFORM AND VERMICIFORM ANTHROPODS

The entries for vermiform and vermiform anthropods are few. Only 25 species or subspecies are listed, the majority of which cause diseases.

TABLE 1 - URTICATING AND VESICATING ARTHROPODS

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>AUTOMERIS</i> <i>corceus</i> Boisduval	---; ---; 27*	Jörg	1939
<i>gramivora</i> Jones	---; ---; 27*	Jörg	1939
<i>viridescens</i> Walker	---; ---; 27*	Jörg	1939
<i>EACLES</i> <i>imperialis</i> Cramer	---; ---; 27*	Jörg	1939
<i>EPICAUTA</i> <i>adspersa</i> Klug	---; ---; 53*	Machado	1943
<i>HYLESIA</i> <i>fulviventris</i> Berg	---; ---; 27*	Jörg	1939
<i>nigricans</i> Berg	---; ---; 27*	Jörg	1939
<i>MEGALOPYGE</i> <i>albicollis</i> Walker	---; causes neuralgia; 27	Jörg	1939
<i>ariota</i> Schaus	---; ---; 239*	Jörg	1939
<i>braulio</i> Schaus	---; ---; 239*	Jörg	1939
<i>guaya</i> Schaus	---; ---; 239*	Jörg	1939
<i>lanata</i> (Stoll-Cram.)	---; ---; 53*	Machado	1943
<i>nuda</i> Stoll	---; ---; 239*	Jörg	1939
<i>urens</i> Berg	---; causes neuralgia when in contact with skin; 27, 239*	Jörg	1939
	Urticating hairs cause pain, causes fever in children; common from Jan.-March; 325	Bourquin	1937
<i>PAEDERUS</i> <i>amazonicus</i> Sharp	---; ---; 53*	Pickel	1940
<i>brasiliensis</i> Erichson	---; ---; 27*, 53*	Pickel	1940

TABLE 1 - URTICATING AND VESICATING ARTHROPODS (conclusion)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>PAEDERUS</i> <i>columbinus</i> Laporte	---; ---; 53*, 82*	Pickel	1940
<i>ferus</i> Erichson	---; ---; 27*	Dallas	1936
	---; ---; 53*	Pickel	1940
<i>fuscipes</i> Curtis	---; ---; 53*	Pickel	1940
<i>goeldii</i> Wasm.	---; ---; 53*	Pickel	1940
<i>irritans</i> Chapin	---; ---; 99*	Pickel	1940
<i>laetus</i> Erichson	---; ---; 128*	Bequaert	1938
<i>ornaticornis</i> Sharp	---; ---; 99*	Dallas	1936
<i>signaticornis</i> Sharp	---; ---; 128*	Pickel	1940
<i>PODALIA</i> <i>chrysozona</i> (Herr-Schäff)	---; ---; 53**	Machado	1943

TABLE 2 - SUMMARY OF DISEASES OR DISEASE ORGANISMS TRANSMITTED BY
URTICATING AND VESICATING ARTHROPODS

SPECIES	DISEASE ORGANISM					DISTRIBUTION
	VIRUS &					
	RICKETTSIA	PROTOZOA	HELMINTHS	OTHER		
AUTOMERIS						
<i>oerossus</i> Boisduval				Dermatitis		27
<i>gramivora</i> Jones				Dermatitis		27
<i>viridescens</i> Walker				Dermatitis		27
EACLES						
<i>imperialis</i> Cramer				Dermatitis		27
EPICAUTA						
<i>adspersa</i> Klug				Urticating liquid		53
HYLESIA						
<i>fulviventris</i> Berg				Dermatitis		27
<i>nigricans</i> Berg				Dermatitis		27
MEGALOPYGE						
<i>ariaia</i> Schaus				Dermatitis		239
<i>brasilio</i> Schaus				Dermatitis		239
<i>guaya</i> Schaus				Dermatitis		239
<i>lanata</i> (Stall-Cram.)				Dermatitis		53
<i>nuda</i> Stoll				Dermatitis		239
<i>urens</i> Berg				Dermatitis		239
PAEDERUS						
<i>amazonicus</i> Sharp				Dermatitis		53
<i>brasilensis</i> Erichson				Dermatitis		27, 53
<i>columbinus</i> Laporte				Dermatitis		53, 82

TABLE 2 - URTICATING AND VESICATING ARTEROPODS (conclusion)

SPECIES	DISEASE ORGANISM				DISTRIBUTION
	VIRUS & RICKETTSIA	PROTOZOA	HELMINTHS	OTHER	
<i>PAEDERUS</i>					
<i>ferus</i> Erichson				Dermatitis	27, 53
<i>fuscipes</i> Curtis				Dermatitis	53
<i>goeldii</i> Wasm.				Dermatitis	53
<i>irritans</i> Chapin				Skin vesicant	99
<i>latus</i> Erichson				Dermatitis	128
<i>ornaticornis</i> Sharp				Dermatitis	99
<i>signaticornis</i> Sharp				Dermatitis	128
<i>PODALIA</i>					
<i>chrysocoma</i> (Herr- Schliff)				Dermatitis	53

LITERATURE CITED

Bequaert, J. C.

1938. Notes on the arthropoda of medical importance in Guatemala. Publ. Carneg. Instn. no. 499. 223-228. (Abstract used).

Bourquin, F.

1937. Notas biológicas sobre *Megalopyge urons* Berg (Lep. Megalop.). Rev. Soc. ent. argent. 8:125-132.

Dallus, E. D.

1936. Dermatitis causadas por coleópteros del género *Pseoderus* (Staphylinidae). Rev. chil. Hist. nat. 39:219-224.

Jürg, M. G.

1939. Dermatitis lepidopterianas. (Segunda nota.) Reun. Soc. argent. Pat. reg. Mendoca 1935. 3:1617-1639.

Machado, O.

1943. Catálogo sistemático dos animais artícaros e peçonhentos do Brasil. Bol. Inst. Vital Brasil. no. 25. 41-64.

Pickel, D. B.

1940. Dermatitis purulenta produzida por duas espécies de *Pseoderus* (Col. Staphylinidae). Rev. Ent., Rio de J. 11(3):775-793.

K. TICKS

The tick entries seldom include information on the immature forms separately from the adults. In fact, most of the entries contain only distributional data.

Ticks are important livestock pests in Latin America; also, some serious disease organisms are transmitted by ticks.

The tables include 182 species or subspecies.

TABLE 1 - TICKS

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>AMBLYOMMA</i>			
<i>agatum</i> de Beaufepaire Aragão	---; 53	Strong et al.	1926
<i>albopictum</i> Neumann	---; 18, 53	Robinson	1926
<i>americanum</i> (Linne)	---; 27, 53, 128, 347	Robinson	1926
	---; 116	Bishopp & Trembley	1945
	---; 129°	Cleare	1919
	---; 237	Dunn	1923
<i>auriculare</i> Conil	---; 27	de Beaufepaire Aragao	1938
	---; 53	Robinson	1926
	---; 82	Osorno- Mesa	1940 +
	---; 130	Floch & Abonnenc	1940 +
	---; 237	Fairchild	1943
	---; 328	Aragão	1936
<i>beccarii</i> Tonelli Rondelli	October; 129	Tonelli Rondelli	1939
<i>bispinosum</i> Neumann	---; 328	Robinson	1926
<i>boulengeri</i> Hirst & Hirst	---; 116	Robinson	1926
<i>bouthieri</i> Senevet	---; 130	Senevet	1940
<i>brasiliense</i> Aragão	---; 27	Aragão	1935
	Bites man in the forest; 53°	Aragão	1936
	---; 53*	Magalhaes	1944
	---; 53*	Travassos	1938 a
<i>brasiliense</i> <i>guyanense</i> Floch & Abonnenc	---; 130	Floch & Abonnenc	1941 +

TABLE 1 - TICKS (continued)

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>AMBLYOMMA</i> <i>brimontii</i> Neumann	---; 130	Neumann	1913
<i>cajennense</i> (Fabricius)	---; 18, 21°, 27, 128°	Robinson	1926
	---; 27°	Aragão	1939
	Active and common all year; 48°, 204, 329°	Bishopp & Trembley	1945
	---; 48, 85, 128, 137, 204°, 223°, 237, 329, 346, 352	Cooley & Kohls	1944 a
	Clay soil in pasture; 53. Sheltered spot on the ground among vegetation, domestic; 69°, 346°. Possible carrier of cutaneous leishmaniasis, domestic; 352°	Strong et al.	1926
	---; 53°, 82°. Naturally infected with Rocky Mountain spotted fever virus; 204	Bustazente & Varela	1946
	Experimental transmission of yellow fever; 53°, 239	Aragão	1936
	Experimentally infected with typhus, abundant; 53	Da Fonseca	1935
	Common in open savanna; 82°	Dunn	1929
	---; 99	Espinosa-Tamayo	1917
	Sept.-Dec.; 129°	Tonelli Rondelli	1939
	All year, common Jan.-Mar., experimental transmission of Rocky Mountain Spotted Fever and yellow fever; 120°	Floch & Abonnenc	1940 +
	---; 223°	Woke	1947
	---; common; 237°	Fairchild	1943
	---; 238°	Fisher	1922
	Suspected vector of leishmaniasis; 239	Brumpt & Pedrosa	1913
	---; 297°	Rayne	1923
	Possible vector of typhus; 328	Anduze	1943
	---; 328°	Flasson	1943

TABLE 1 - TICKS (continued)

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>AMBLYOMMA</i>	---; 53, 239	Robinson	1926
<i>calcaratum</i>			
Neumann	---; 130	Floch & Abonnenc	1942 +
	---; 297	Reyne	1923
<i>coëlebs</i>	---; 51, 53, 204	Robinson	1926
Neumann	Nov.; 129	Tonelli Rondelli	1939
	---; 130	Floch & Abonnenc	1941 +
	Rare; 237	Fairchild	1943
	---; 239	Aragao	1936
	---; 297	Reyne	1923
<i>concolor</i>	---; 27, 53	Robinson	1926
Neumann	---; 129	Bodkin	1920
<i>cooperi</i>	---; 27	Aragao	1935
Muttall &	---; 53, 239	Robinson	1926
Warburton	---; 328	Vogelsang & Cordero	1940
<i>crassum</i>	---; 82, 237	Osorno- Mesa	1940
Robinson			
<i>cruciferum</i>	---; 20	Robinson	1926
Neumann	---; 22	Tate	1941
<i>curruoa</i>	---; 328	Schulze	1936
Schulze			
<i>darlingi</i>	---; 237	Dunn	1923
Muttall	---; 238	Fisher	1922
<i>darwini</i>	Mar., Apr.; 116	Banks	1924
Hirst & Hirst			
<i>darwini</i>	---; 259	Schulze	1937
<i>darwini</i>			
Hirst & Hirst			

TABLE 1 - TICKS (continued)

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>ANBLYOMMA</i>			
<i>darwini</i>			
<i>wollebaski</i> Schulze	---; 116	Schulze	1937
<i>diminutivum</i> Neumann	---; 82	Robinson	1926
<i>dissimile</i> Koch	---; 21	Strong et al.	1926
	---; 22	Tate	1941
	---; 24, 53, 82, 85, 128, 137, 138, 204, 223, 237, 240, 328, 329	Cooley & Kohls	1944 a
	---; 27, 238, 239, 346	Robinson	1926
	---; 53	Aragão	1936
	On cold-blooded animals only; 129°	Bodkin	1918
	Jan., May; 129	Cleare	1919
	Sept.; 130	Senevet	1940
<i>fasqueti</i> Floch & Abonnenc	---; 130	Floch & Abonnenc	1940 +
<i>finitimum</i> Tonelli Rondelli	Nov.; 129	Tonelli Rondelli	1939
<i>fossium</i> Neumann	---; 27	Aragão	1935
	Suspected vector of leishmaniasis; 53, 239	Brumpt & Pedroso	1913
	---; 53°	Aragão	1936
	Bites man in forest regions; 129°	Cleare	1919
	---; 130°, 239°	Floch & Abonnenc	1940 +
<i>furcula</i> Dönitz	---; 27	Robinson	1926
<i>fuscum</i> Neumann	---; 53	Aragão	1936
<i>geayi</i> Neumann	---; 53, 82, 129	Robinson	1926
	---; 130	Neumann	1913
	---; 237, 238	Fairchild	1943

TABLE 1 - TICKS (continued)

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>ANBLYONMA</i> <i>gertschi</i> Cooley	---; 237, 238	Fairchild	1943
<i>goeldii</i> Neumann	---; 53, 82, 129	Robinson	1926
	---; 130	Neumann	1913
	---; 297	Reyne	1923
<i>guianense</i> Neumann	---; 297	Robinson	1926
<i>hirtum</i> Neumann	---; 24	Anonymous	1914
	---; 116, 130	Robinson	1926
	---; 259	Schulze	1937
<i>humeralis</i> Koch	---; 53, 325	Robinson	1926
	Oct.; 129	Tonelli Rondelli	1939
	---; 130	Floch & Abonnenc	1940 +
	---; 237, 238	Fairchild	1943
	---; 297	Reyne	1923
<i>incisum</i> Neumann	---; 51, 53, 99	Robinson	1926
	---; 130°	Floch & Abonnenc	1941 +
	---; 239	Aragao	1936
<i>inornatum</i> (Banks)	---; 204	Eads	1951
<i>latepunctatum</i> Tonelli Rondelli	Nov.; 129	Tonelli Rondelli	1939
<i>leucosomum</i> Schulze	---; 53	Schulze	1936
	---; 82	Osorno- Mesa	1940 +
<i>longirostre</i> Koch	---; 51, 53, 329	Robinson	1926
	---; 82	Osorno- Mesa	1940 +
	---; 130	Floch & Abonnenc	1940 +

TABLE 1 - TICKS (continued)

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>ANBLYONNA</i>	---; 237	Dunn	1923
<i>Longirostre</i>	---		
Koch	---; 236	Fairchild	1943
(cont.)	---; 239	Aragao	1936
	Naturally infected with <i>Trypanosoma cruzi</i> ; 328	Pifano	1941
<i>maculatus</i>	---; 21, 53, 75, 82, 99, 239, 240, 325	Cocley & Kohls	1944 a
Koch	---; 27*	Dios & Knopoff	1934
	---; 129	Bodkin	1920
	---; 130	Floch & Abonnenc	1940 +
	Along the coast; 204	Bishop & Trembley	1945
	---; 328	Bailou	1945
	---; 346	Roy & Brown	1954
<i>mantiquirens</i>	---; 53, 129	Robinson	1926
Aragao	---; 130	Floch & Abonnenc	1942 +
	---; 237	Dunn	1934
	---; 297	Reyre	1923
<i>mixtus</i>	---; 329	Tonelli	
Koch		Rondelli	1939
<i>multipunctus</i>	---; 328	Robinson	1926
Neumann			
<i>naponense</i>	---; 129	Cleare	1919
Packard	---; 237	Osorno-Mesa	1940 +
<i>neumanni</i>	---; 27	Aragao	1935
Ribaga			
<i>nigrum</i>	Oct; 129	Tonelli	
Tonelli		Rondelli	1939
Rondelli			

TABLE 1 - TICKS (continued)

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>AMBLYOMMA</i> <i>nodosum</i> Neumann	---; 53, 85, 128, 238	Robinson	1926
	---; 82	Osorno- Mesa	1940 +
	---; 237	Fairchild	1943
<i>oblongoguttatum</i> Koch	---; 51, 53, 129, 238	Robinson	1926
	Bites man in forest; 53°	Aragao	1936
	---; 130°	Flech & Abonnenc	1940 +
	---; 237°	Fairchild	1943
	---; 237	Dunn	1934
	---; 297	Reyne	1923
<i>ooale</i> Koch	---; 27°, 51, 53, 85°, 129, 204, 239, 325°	Robinson	1926
	---; 82	Patino- Camargo	1940
	Aug.; 130	Senevet	1940
	---; 237°	Fairchild	1943
	---; 328	Vogelsang & Cordero	1940
<i>paoae</i> Aragao	---; 53, 239	Robinson	1926
	---; 82	Osorno- Mesa	1940 +
	---; 129	Bodkin	1920
	---; 237	Fairchild	1943
	---; 297	Reyne	1923
<i>parvitarsum</i> Neumann	---; 27, 51, 75	Robinson	1926
<i>parvum</i> Aragao	---; 27	de Beaurepaire Aragao	1938
	---; 53	Robinson	1926
	---; 237, 238	Fairchild	1943

TABLE 1 - TICKS (continued)

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>AMBLYOMMA</i>	---; 237	Dunn	1933
<i>pecarium</i>	---		
Dunn	---; 238	Fairchild	1943
<i>piotum</i>	---; 27	Aragão	1935
Neumann	---; 53	Robinson	1926
	---; 130	Floch & Abonnenc	1942 +
<i>pilosum</i>	---; 116	Robinson	1926
Neumann			
<i>pseudoconcolor</i>	---; 27	de Beaurepaire Aragão	1938
Aragão	---		
	---; 53, 239	Robinson	1926
<i>quosicyrium</i>	---; 204	Robinson	1926
Robinson			
<i>romitii</i>	Oct, Dec.; 129	Tonelli	
Tonelli		Rondelli	1939
Rondelli			
<i>rotundatum</i>	---; 27	Aragão	1935
Koch	---		
	---; 53	Robinson	1926
	---; 82	Osorno- Mesa	1940 +
	---; 130	Floch & Abonnenc	1942 +
	---; 328	Vogelsang & Cordero	1940
<i>sabanerae</i>	---; 82	Osorno- Mesa	1940 +
Stoll	---		
	---; 128	Robinson	1926
<i>scalpturatum</i>	---; 51, 53	Robinson	1926
Neumann			
<i>scutatum</i>	---; 128	Robinson	1926
Neumann			
<i>striatum</i>	---; 27	Aragão	1935
Koch			
	Naturally infected with <i>Rickettsias</i> ; 53*	Da Fonseca	1935
	---; 53*	Aragão	1936

TABLE 1 - TICKS (continued)

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>ANBLYOMMA</i> <i>striatum</i> Koch (cont.)	Naturally infected with exanthematic typhus; 53*	Travassos	1938
	Suspected vector of leishmaniasis; 53, 239	Brumpt & Pedroso	1913
	---; 53*	Magalhaes	1944
	---; 130°, 239°	Floch & Abonnenc	1940 +
	---; 237	Osorno- Mesa	1940 +
	---; 297°	Rayne	1923
<i>tapirellum</i> Dunn	---; 237	Dunn	1933
	---; 238°	Fairchild	1943
<i>tapiri</i> Tonelli Rondelli	Nov.; 129	Tonelli Rondelli	1939
<i>testudinis</i> (Coul)	---; 27	Aragão	1935
	---; 328	Vogelsang & Cordero	1940
<i>torrei</i> Vigueras	---; 18	Vigueras	1934
	---; 21	Whittick	1939
<i>tuberculatum</i> Marx	---; 18	Vigueras	1934
<i>variegatum</i> (F.)	---; 24	Senevet	1938
	---; 127, 128	Robinson	1926
<i>varium</i> Koch	---; 27, 53, 75, 82, 129, 223, 237, 238, 297	Robinson	1926
	---; 328	Vogelsang & Cordero	1940
<i>williamsi</i> Banks	April; 116	Banks	1924
<i>AROENTER</i> <i>columbianus</i> Schulze	---; 82	Schulze	1937.

TABLE 1 - TICKS (continued)

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>ABOCECTOR</i> <i>nitens</i> Neumann	---; 18, 29, 21, 27, 82, 85, 128, 204, 237, Arthur 329		1960
<i>ASTRICOLA</i> <i>coprophilus</i> (McIntosh)	---; 204	Coolley & Kohls	1944
<i>marginatus</i> (Banks)	---; 18	Coolley & Kohls	1944
	---; 22	Fox	1947
<i>APOMONNA</i> <i>levis</i> Neumann	---; 27	Schulze	1936
<i>patagoniense</i> Schulze	---; 27	Schulze	1936
<i>ARGAS</i> <i>miniatus</i> Koch	---; 18	Vigueras	1934
	---; 24, 329	Anonymous	1914
	---; 129	Coolley & Kohls	1944
	---; 237, 238	Dunn	1923
<i>persicus</i> Oken	---; 18, 204°. In native huts; 238	Coolley & Kohls	1944
	---; 27, 204	Hoogstraal	1956
	Experimental transmission of yellow fever; 53	Laemmert et al.	1946
	---; 75	Lahille	1915
	Common in chicken houses; 82	Dunn	1929
	---; 129	Cleare	1919
	---; 130	Floch & Abonnenc	1941 +
	Common in houses; 237°	Fairchild	1943
	---; 240	Recomel	1924
	---; 297	Stage	1947
	---; 328	Iriarte	1943
<i>persicus</i> var. <i>discolor</i> Aragão	---; 53°	Aragão	1936

TABLE 1 - TICKS (continued)

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>ARGAS</i>			
<i>persicus</i> var. <i>miniatus</i> (Oken)	---; 346	Lahille	1915
<i>persicus</i> var. <i>porteri</i> Lahille	---; 75	Lahille	1915
<i>reflexus</i> (Fabricius)	---; 75, 82 (Cracks and crevices of pigeons cotes, bites man, invade human habitations in the absence of pigeons, pain or irritation may be felt for years from the bite)	Hoogstraal	1956
	---; 328	Vogelsang & Cordero	1940
<i>reflexus</i> <i>magnus</i> Neumann	Domestic; 99°	León & de León	1947
<i>BOOPHILUS</i>			
<i>annulatus</i> (Say)	---; 18, 21, 24, 99, 128, 223	Minning	1934
	---; 22	Tate	1941
	Jan-Apr.; 27	Viton	1922
	---; 59, 204	Hoogstraal	1956
	---; 328	Ballou	1945
<i>annulatus</i> <i>australis</i> Fuller	Common; 22	Van Volkenberg	1934
	---; 24	Senevet	1938
	---; 129	Clears	1919
	---; 223	Koke	1947
	---; 297	Rayne	1923
	---; 352°	Toumanoff	1944
<i>annulatus</i> <i>microplus</i> (Can.)	---; 22	Tate	1941
	Experimental transmission of yellow fever; 53	Leeswert et al.	1946
	---; 85°	Squibb	1946
	---; 297	Stage	1947

TABLE 1 - TICKS (continued)

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>BOOPHILUS</i>	---; 18	Viguera	1934
<i>australis</i> (Fuller)	---; 21, 53	Sharif	1938
	---; 82	Dawe	1917
<i>ayolops</i> Manning	---; 237	Osorno- Mesa	1940 +
<i>decoloratus</i> (Koch)	---; 27	Hoogstraal	1956
<i>microplus</i> (Canestrini)	---; 18	Viguera	1934
	---; 22, 69, 352	Hoogstraal	1956
	All year peak May-Jul.; 23	Wilson	1921
	---; 24	Floch & Abonnenc	1945 +
	---; 27*, 53, 99, 204, 237, 239	Cooley	1946
	---; 27	Aragao	1935
	---; 82	Osorno- Mesa	1940
	---; 116	Schulze	1937
	---; 128, 352	Strong et al.	1926
	---; 130	Floch & Abonnenc	1940 +
	---; 328	Ballou	1945
<i>CERATIXODES</i>			
<i>putus</i> Packard & Cambridge	---; 27	Aragao	1935
<i>DERMACENTOR</i>			
<i>andersoni</i> Stiles	---; 53*	Da Fonseca	1935
	---; 53*	Magalhaes	1944
	Experimental transmission of <i>Bartonella bacilliformis</i> ; 240	Mera	1943
<i>dispar</i> Cooley	---; 128	Arthur	1940
<i>disseminata</i> Cooley	---; 128	Arthur	1940
	---; 204	Kohls & Quinat	1952

TABLE 1 - TICKS (continued)

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>DERMACENTOR</i>			
<i>halli</i> McIntosh	---; 204	Arthur	1940
<i>imitans</i> Warburton	---; 85	Warburton	1933
<i>hunteri</i> Bishopp	---; 204	Cooley	1938
<i>latus</i> Cooley	---; 85 ---; 237	Arthur Fairchild	1940 1943
<i>nigrolineatus</i> Packard	---; 204	Bishopp & Trembley	1945
<i>nitens</i> Neumann	---; 18 ---; 20, 21, 23, 24, 85, 128, 137, 238, 329 Common; 82 ---; 99 ---; 204 ---; 223 Common; 237 ---; 328	Viguerae Bishopp & Trembley Dunn Kapinosa- Tamayo Bequaert Woke Fairchild Flasson	1934 1945 1929 1917 1933 + 1947 1943 1943
<i>parampertus</i> Neumann	Experimentally infected with Rocky Mountain spotted fever; 204	Tovar	1944
<i>parampertus</i> <i>marginatus</i> Banks	---; 204	Roberts	1934
<i>variabilis</i> Say	Suspected vector of Leishmaniasis; 53 ---; 204	Erump Pedraza Bishopp & Trembley	1913 1945
<i>HAEMAPHYSALIS</i>			
<i>cinnabarinus</i> Koch	---; 82 ---; 297	Cooley Keyne	1946 1923
<i>juxtakochi</i> Cooley	---; 237, 238	Cooley	1946

TABLE 1 - TICKS (continued)

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>HAEMAPHYSALIS</i>	---; 27	Aragao	1935
<i>koohi</i>	---		
Aragao	---; 53	Aragao	1936
	Nov.; 129	Tonelli Bondelli	1939
	---; 130	Floch & Abonnenc	1940 +
	---; 237	Fairchild	1943
	---; 238	Osorno- Mesa	1940 +
	---; 328	Cooley	1946
<i>leporis</i>	---; 27	Aragao	1939
Packard			
<i>leporis-</i>	---; 27	Aragao	1936
<i>palustris</i>			
(Packard)	Carrier of Rocky Mountain spotted fever; 53	Da Fonseca	1935
	---; 53a*	Da Fonseca	1935
	---; 82, 238	Osorno- Mesa	1940 +
	---; 204	Cooley	1946
	---; 237	Fairchild	1943
<i>HYALOMMA</i>			
<i>egyptium</i>	---; 24	Anonymous	1914
Linn.			
<i>drecedarii</i>	---; 27	Hoogstraal	1936
Koch	---; 53	Campana- Fouget	1959
<i>longirostre</i>	---; 329	Anonymous	1914
Neumann			
<i>IXODUS</i>	---; 53, 85, 128, 238	Cooley & Kohls	1945
<i>affinis</i>			
Neumann	---; 237	Cooley	1938
<i>auralis</i>	---; 53	da Fonseca	1935 b
de Fonseca			

TABLE 1 - TICKS (continued)

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>IXODES</i> <i>auritulus</i> Neumann	Jan; 27	de Meaurepaire Aragao	1938
	---; 53, 75, 85, 128	Cooley & Kohls	1945
	---; 240	Nuttall	1916
<i>bequaerti</i> Cooley	---; 137, 204	Cooley & Kohls	1945
<i>bicornis</i> Neumann	---; 85, 128, 137, 204	Cooley & Kohls	1945
	---; 237	Cooley	1938
<i>boliviensis</i> Neumann	---; 51, 85	Nuttall	1916
	---; 82	Osorno- Mesa	1940 +
<i>brunneus</i> Koch	---; 82	Osorno- Mesa	1940 +
	---; 328	Cooley & Kohls	1945
<i>coxae furcatus</i> Neumann	---; 53	Aragao	1936
<i>dampfi</i> Cooley	---; 204	Cooley & Kohls	1945
<i>fuscipes</i> Koch	---; 237	Nuttall	1916
<i>hexagonus</i> <i>cookei</i> Packard	---; 69, 85	Nuttall	1916
<i>juvenis</i> Neumann	---; 82	Osorno- Mesa	1940 +
<i>lorioatus</i> Neumann	---; 27, 53, 204, 239	Nuttall	1916
	---; 328	gelesang & dero	1940
<i>lorioatus</i> var. <i>spinosus</i> Nuttall	---; 82	Osorno- Mesa	1940 +
	---; 137	Root	1924
	---; 237, 238	Fairchild	1943
	---; 297	Rayne	1923

TABLE 1 - TICKS (continued)

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>IXODES</i>			
<i>luciae</i> Senevet	---; 27, 128, 130, 138, 237	Coolley & Kohls	1945
<i>mexicanus</i> Coolley & Kohls	---; 204	Coolley & Kohls	1945
<i>minor</i> Neumann	---; 237	Fairchild	1943
<i>murreleti</i> Coolley	---; 204	Coolley & Kohls	1945
<i>nuttalli</i> Lahille	---; 27, 240	Nuttall	1916
<i>putus</i> Pickard- Cambridge	---; 27	Nuttall	1916
<i>reticulatus</i> Fabricius	---; 18	Vigueras	1934
<i>ricinus</i> Linnaeus	---; 18	Vigueras	1934
	---; 27	de Beaurepaire Aragão	1938
	---; 237*	Dunn	1923
	---; 325	Calzada	1938
<i>ricinus</i> <i>aragaoi</i> Da Fonseca	---; 53	da Fonseca	1935
<i>ricinus</i> <i>scapularis</i> Say	---; 85, 204	Bishopp & Trembley	1945
<i>rubidus</i> Neumann	---; 204, 237	Coolley & Kohls	1945
<i>scapularis</i> Say	---; 204	Coolley & Kohls	1945
<i>tancitaris</i> Coolley & Kohls	---; 204	Coolley & Kohls	1945
<i>urias</i> White	---; 27	Coolley & Kohls	1945
<i>MARGAROPUS</i> <i>annulatus</i> (Say)	---; 18	Vigueras	1934
	Rare; 237, 238	Dunn	1923

TABLE 1 - TICKS (continued)

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>MARGAROPUS</i>	---; 18	Vigueras	1934
<i>annulatus</i>			
<i>australis</i>	Common, all year; 23	Wilson	1921
(Fuller)	Common along river banks; 82	Dunn	1929
	Common; 237	Dunn	1923
	---; 352	Larrousse	1925
<i>australis</i>	---; 24, 329	Anonymous	1914
(Fuller)	---; 53	Brumpt	1919
<i>ORNITHODOROS</i>	Common in guano islands; 240	Cooley &	
<i>ambius</i>		Kohls	1944
Chamberlain	Experimentally infected with <i>Trypanosoma cruzi</i> ; 240°	Mazzotti & Osono	1943
<i>andusei</i>	Bat caves, December; 328	Matheson	1941
Matheson			
<i>asteoi</i>	---; 18	Cooley &	
Matheson		Kohls	1944
	Caves; 237, 238	Fairchild	1943
<i>brasiliensis</i>	In houses; 53°	Aragao	1936
Aragao			
<i>brodyi</i>	Caves; 237	Fairchild	1943
Matheson			
<i>oophophilus</i>	Abandoned mines harboring bats' guano; 204	Cooley &	
McIntosh		Kohls	1944
<i>coriaceus</i>	Experimental transmission of <i>Spirochaeta persica</i> ; 204	Brumpt	1939
Koch			
	---; 204°	Cooley &	
		Kohls	1944
<i>dugei</i>	---; 204	Mazzotti	1943
Mazzotti			
<i>duoni</i>	---; 237, 238	Fairchild	1943
Matheson			
<i>dyeri</i>	Abandoned mines harboring bats' guano; 204	Cooley &	
Cooley &		Kohls	1944
Kohls			

TABLE 1 - TICKS (continued)

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>ORNITHODOROS</i> <i>furosus</i> Neumann	Huts and pigsties, experimentally infected with relapsing fever and spotted fever; 99°	Mazzotti & Osone	1947
	Experimentally infected with <i>Trypanosoma cruzi</i> ; 99	Mazzotti & Osone	1943
	Experimentally infected with spotted fever; 204	Mazzotti & Varela	1946
<i>marginatus</i> Banks	---; 18	Vigueras	1934
<i>magnini</i> Duges	---; 18	Vigueras	1934
	---; 27	Aragão	1935
	All year, peak Dec.-Jan.; 75	Descazeaux	1925
	---; 204°	Sen	1938
	---; 240	Escomel	1924
	---; 328	Vogelsang & Cordero	1940
<i>natteri</i> Warburton	---; 53	Aragão	1936
<i>nicolleti</i> Mooser	Rat burrows, naturally infected with relapsing fever <i>Spirochaeta</i> ; 204	Brumpt et al.	1939
	Experimental transmission of <i>Spirochaeta duttoni</i> and <i>S. persioa</i> ; 204	Brumpt	1939
	Experimentally infected with Rocky Mountain spotted fever; 204°	Davis	1943
<i>puertoricensis</i> Fox	All year; 22	Fox	1947
<i>rostratus</i> Aragão	---; 27, 51,	Aragão	1935
	In houses, experimental transmission of yellow fever; 53°, 239	Aragão	1936
	---; 130	Floch & Abonnenc	1941
<i>rudis</i> Karsch	In houses; 82°, 204°, 237°, 328°	Cooley & Kohls	1944
	Common in houses, possible vector of relapsing fever; 237°	Fairchild	1943
	---; 328°	Vellard	1937

TABLE 1 - TICKS (continued)

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>ORNITHODOROS</i> <i>talaje</i> Guerin & Meneville	---; 27	Aragão	1935
	Occasionally bite man; 53°	Aragão	1936
	---; 69*	Cooley & Kohls	1944
	Enters huts; 75, 204, 328	Roy & Brown	1954
	In houses; 82*. Bamboo beds in thatched huts, naturally and experimentally infected with spirochetes (<i>Spirochaeta</i> <i>neotropicalis</i>); 238*	Clark	1942
	Experimental vector of relapsing fever; 82	Osorno- Mesa	1940 +
	April; 116	Banks	1924
	Enters houses; 128°	Theodor	1932
	---; 128*, 237°	Cooley & Kohls	1944
	May, in cave inhabited by wild animal; 130	Floch & Abonnenc	1944
	---; 204*, 237*	Brumpt et al.	1939
	In houses, common; 237°	Fairchild	1943
	Experimentally infected with relapsing fever; 237	Dunn	1923a
	---; 239. Among stones far from houses; 325	Cordero et al.	1928
	---; 240	Chamberlain	1920
<i>talaje</i> <i>capensis</i> Neumann	---; 23, 259	Schulze	1937
<i>curvicauda</i> (Duges)	---; 27, 82	Roy & Brown	1954
	---; 53	Dios & Knopoff	1934
	In native huts, experimental transmission of relapsing fever; 204	Cooley & Kohls	1944
	Naturally infected with <i>Spirochaeta</i> <i>curvicauda</i> , at 1900 meter altitudes; 204*	Brumpt et al.	1939

TABLE 1 - TICKS (continued)

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>ORNITHODOROS</i> <i>venezuelensis</i> Brumpt	In houses, possible vector of spotted fever; 82	Patino et al.	1937
	Naturally infected with <i>Spirochaeta venezuelensis</i> ; 82, 237, 328	Brumpt et al.	1939
	---; 82°. Experimentally and naturally infected with relapsing fever spirochetes; 237°	Clark	1942
	---; 82*, 237*, 328*. In houses, bites man at night, suspected vector of relapsing fever, experimental transmitter of relapsing fever; 99°	León & De León	1947
	In houses, bites man at night; 238°	Dunn	1931
<i>viguerasi</i> Cooley & Kohls	Bat cave, Sept.; 18	Cooley & Kohls	1941
	---; 21	Cooley & Kohls	1944
<i>OTOBIUS</i> <i>magnini</i> (Duges)	---; 18°, 27°, 53°, 204°	Cooley & Kohls	1944
<i>OTOCENTOR</i> <i>nitens</i> (Neumann)	---; 18, 20, 21, 85, 91, 128, 204, 237, 329	Cooley	1938
	Experimentally infected with spotted fever; 82	Patino-Camargo	1940 +
<i>RHIPICEPHALUS</i> <i>annulatus</i> Neumann	---; 18	Vigueras	1934
<i>annulatus</i> var. <i>argentina</i> Wolffhügel	---; 27	Aragao	1939
<i>annulatus</i> var. <i>micropus</i> (Canestrini)	---; 18	Vigueras	1934
<i>australis</i> Fuller	---; 53	Strong et al.	1926
<i>bursa</i> Canestrini & Fanzago	---; 18 ---; 130	Vigueras Floch & Abonnenc	1934 1941 +
<i>evertsi</i> <i>evertsi</i> Neumann	---; 53	Hoogstraal	1956

TABLE 1 - TICKS (continued)

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>RHIPICEPHALUS sanguineus</i> (Letreille)	---; 18	Vigueras	1934
	In houses; 22°	Tate	1947
	---; 22, 237. In houses; 69°, 204°	Cooley	1946
	---; 24	Senevet	1938
	---; 27	Aragão	1935
	Rarely bites man, experimental transmission of <i>Rickettsia brasiliensis</i> ; 53°	Aragão	1936
	Experimental transmission of yellow fever; 53	Laemmert et al.	1946
	Carrier of spotted fever; 53	Da Fonseca	1935
	---; 53*	Magalhaes	1944
	---; 53°	Bequaert	1926
	---; 69, 352	Leeson	1951
	---; 75	Macchiavello	1942
	In houses; 82	Dunn	1929
	---; 129	Cleare	1919
	Experimental transmission of relapsing fever; 130*	Floch & Abonnenc	1941 +
	Sept.; 130	Senevet	1940
	In houses, naturally infected with spotted fever; 204°	Bustamante, Varela & Ortiz Mariotte	1946
	Naturally infected with spotted fever; 204	Bustamante & Varela	1947
	---; 204*	Ortiz Mariotte et al.	1944
	---; 223	Woke	1947
	Common; 237*	Fairchild	1943
	---; 297	Bayne	1923
	---; 328	Ballou	1945

TABLE 1 - TICKS (conclusion)

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>RHIPICEPHALUS</i> <i>sanguineus</i> <i>sanguineus</i> (Latreille)	---; 53, 328. Lake regions, in rural dwellings, possible vector of Rocky Mountain spotted fever; 204°	Hoogstraal	1956
<i>texanus</i> Banks	---; 18	Vigueras	1934
<i>SPELAEORHYNCHUS</i> <i>latus</i> Banks	---; 22 ---; 53, 238	Fox da Fonseca	1947 1935c
<i>UROBOOPHILUS</i> <i>oyclops</i> Minning	---; 85, 116, 237 In mountainous regions at an elevation of 1000 meters; 128	Schulze Minning	1937 1934
<i>micropus</i> Canestrini	---; 18, 21, 24, 27, 51, 53, 82, 130, 239, 297, 325, 328	Minning	1934

TABLE 2 - SUMMARY OF DISEASES OR DISEASE ORGANISMS TRANSMITTED BY TICKS

SPECIES	DISEASE ORGANISM				DISTRIBUTION
	VIRUS & RICKETTSIA	PROTOZOA	HELMINTHS	OTHER	
<i>AMBLYOMMA</i> <i>brasiliense</i> Aragão	Rocky Mountain spotted fever				53
	<i>Rickettsia</i> <i>maculatum</i>				53
<i>cajennense</i> (Fabricius)	Spotted fever				53, 82
	Spotted fever				130 +
<i>maculatum</i> Koch	Rocky Mountain spotted fever				27
<i>striatum</i> Koch	Brazilian spotted fever				53
	Rocky Mountain spotted fever				53 (Aragão 1924)
	Rickettsiose				53 (Da Fonseca 1935)
	Exanthematic typhus				53 (Travassos 1938)
<i>DERMACENTOR</i> <i>andersoni</i> Stiles	Rocky Mountain spotted fever				53
<i>HAEMAPHYSALIS</i> <i>leporispalustris</i> (Packard)	Rocky Mountain spotted fever				53
<i>ORNITHODORUS</i> <i>rudis</i> Karach				Relapsing fever	204, 237, 238

TABLE 2 - TICKS (conclusion)

SPECIES	DISEASE ORGANISM					DISTRIBUTION
	VIRUS &					
	RICKETTSIA	PROTOZOA	HELMINTHS	OTHER		
<hr/>						
<i>ORNITHODORUS</i>						
<i>talaje</i>				Relapsing fever	69, 82, 128, 204, 237, 238	
<i>Guerin-Meneville</i>						
<i>curicatus</i>				Relapsing fever	204	
<i>(Duges)</i>						
<i>venezuelensis</i>				Relapsing fever	82, 237, 328	
<i>Brumpt</i>						
<i>RHIPICEPHALUS</i>						
<i>sanguineus</i>	Rocky Mountain spotted fever				53, 204	
<i>Latreille</i>	Spotted fever				130 +	
	<i>Rickettsia brasiliensis</i>				237	

LITERATURE CITED

- Anduze, P.J.
1943. Estudios de entomologia medica en el Estado Merida (Venezuela). Bol. Ent. venezol. 2(3):149-156.
- Anonymous
1914. Ticks in the West Indies. Agric. News, Barbados. 25(110):90 p.
- Aragão, H. de B.
1935. Observações sobre os Ixodídeos da Republica Argentina. Mem. Inst. Osw. Cruz. 30(3):519-524.
1936. Ixodidas brasileiros e de alguns países limitrophes. Mem. Inst. Osw. Cruz. 31(4):759-844.
1938. Nota sobre os Ixodídeos da Republica Argentina. Mem. Inst. Osw. Cruz. 33(2):319-327.
1939. Observaciones sobre los Ixodídeos de la Republica Argentina. 9. Reun. Soc. argent. Pat. reg., Mendoza. 3:1476-1488.
- Arthur, D.R.
1960. Ticks. A monograph of the Ixodoidea. Part V. On the genera *Dermacentor*, *Anocentor*, *Comptosia*, *Boophilus* and *Margaropus*. London, Cambridge University Press. 251 p.
- Ballou, C.H.
1945. Notas sobre insectos dañinos observados en Venezuela 1938-1943. Cuad. verde Cem. organ. 3a. Conf. interamer. Agric. no. 34. 151 p.
- Banks, N.
1924. Arachnida of the Williams Galapagos Expedition. Zoologica, N.Y. 5(9):93-99.
- Bequaert, J.C.
1933. Contribution to the Entomology of Yucatan. Publ. Carneg. Instn Wash. no. 431. 547-574.
- Bishopp, F.C. & H.L. Trembley
1945. Distribution and hosts of certain North American ticks. J. Parasit. 31(1):1-34.
- Bodkin, G.E.
1918. The biology of *Amblyomma dissimile* Koch, with an account of its power of reproducing parthenogenetically. Parasitology. 11(1):10-17.
1920. Report of the Government Economic Biologist. Rep. Dep. Sci. Agric. Brit. Guiana. 3:9 p. (Abstract used).
- Brumpt, E.
1919. Existence de la Spirochetose des Bovides au Brésil. Transmission de cette Affection par la Tique, *Margaropus australis* (Fuller). Bull. Soc. Pat. exot. 12(10):748-757.
1939. Une nouvelle fièvre récurrente humaine découverte dans la région de Babylone (Irak). C.R. Acad. Sci., Paris. 208(25):2029-2031.

Brumpt, E. & A. Pedroso

1913. Recherches epidemiologique sur la Leishmaniose forestiere americaine dans l'Etat de Sao-Paulo (Bresil). Bull. Soc. Pat. exot. 6(10):752-762.

—, L. Mazzotti & L.C. Brumpt

1939. Etude epidemiologique de la fièvre récurrente endémique des hauts plateaux mexicains. Ann. Parasit. hum. comp. 17(4):275-286.

Bustamente, M.E. & G. Varela

1946. III. Estudios de fiebre manchada en México. Hallazgo del *Amblyomma cajennense* naturalmente infectado, en Veracruz. Rev. Inst. Salubr. Enferm. trop., Méx. 7(2):75-78.

— & —

1947. IV. Estudios de fiebre manchada en México. Papel del *Rhipicephalus sanguineus* en la transmisión de la fiebre manchada en la República Mexicana. Rev. Inst. Salubr. Enferm. trop., Méx. 8(2):139-151.

— & C. Ortiz Mariotte

1946. II. Estudios de fiebre manchada en México. Fiebre manchada en La Laguna. Rev. Inst. Salubr. Enferm. trop., Méx. 7(1):39-48.

Caizada, V.

1938. Nueva comprobación de *Ixodes ricinus* en el país. Bol. Direcc. Ganad., Montevideo. 10(3):179 (Abstract used).

Campena-Rouget, Y.

1959. La Teratologie des Tiques. Ann. Parasit. hum. comp. 34(3):354-431.

Chamberlin, R.V.

1920. South American Arachnida, chiefly from the Guano Islands of Peru. Sci. Bull. Mus. Brooklyn Inst. Arts Sciences. 3(2):35-44.

Clark, H.C.

1942. Relapsing fever in Panama. A symposium on relapsing fever in the Americas. Publ. Amer. Ass. Advanc. Sci. 1942. pp. 29-34.

Cleare, L.D. Jr.

1919. Some parasites of man and animals in British Guiana. Brit. Guiana med. Annu. for 1919. pp. 58-77.

Cooley, R.A.

1938. The genera *Dermacentor* and *Otocentor* (Ixodidae) in the United States with studies in variation. Nat. Inst. Hlth Bull. no. 171. 89 p.

- 1946. The genera *Sorophilus*, *Rhipicephalus*, and *Hemaphysalis* (Ixodidae) of the New World. Nat. Inst. Hlth Bull. no. 187. 54 p.

— & G.M. Kohls

1941. *Ornithodoros viquezovi*, a new species of tick from bats in Cuba (Acarina: Ixodoidea). Publ. Hlth Rep., Wash. 56(9):396-399.

— & —

1944. The Argasidae of North America, Central America and Cuba. Amer. Midl. Nat. Monogr. no. 1. 152 p.

— & —

- 1944a. The genus *Amblyomma* (Ixodidae) in the United States. J. Parasit. 30:77-111.

— & —

1945. The genus *Ixodes* in North America. Nat. Inst. Hlth Bull. no. 205. 140 p.

Cardoso, E. M., E. G. Vogelsang & V. Coesio

1928. *Ornithodoros talaje* (Guérin-Meneville) y su presencia en el Paraguay y en el Uruguay. *Physis*, Buenos Aires. 9(32):123-127. (Abstract used).

de Fonseca, F.

1935. Notas de acarologia. X. Occorrença, em S. Paulo, de acarídeos transmissores de varias modalidades de febre exantemática e suas possíveis relações com a rickettsiose neotrópica paulista. *Mem. Inst. Butantan*. 9:27-41.

- 1935a. Notas de acarologia. XV. Occorrença de sub-especie de *Ixodes ricinus* (L., 1758) no Estado de S. Paulo (Acarina, Ixodidae). *Mem. Inst. Butantan*. 9:131-135.

- 1935b. Notas de acarologia. XVI. *Ixodes amarali*, sp.n. (Acarina, Ixodidae). *Mem. Inst. Butantan*. 9:137-139.

- 1935c. Notas de acarologia. XVII. Localizacao, frequencia, distribuição geographica e hospedadores de *Spelaeorhynchus latus* Banks, 1917 (Acarina, Spelaeorhynchidae). *Mem. Inst. Butantan*. 9:145-148.

Davis, G. E.

1943. Studies on the biology of the Argasid tick, *Ornithodoros nicolleti* Mooser. *J. Parasit.* 29:393-395.

Dave, M. T.

1917. Relación de un Viaje por el Rio Magdalena, por el Departamento del Magdalena y por la Peninsula de la Guajira (Colombia). *Mem. Minist. Agric., Bogotá*. pp. 63-116. (Abstract used).

Descaseaux, J.

1925. Sur la presence au Chili de l'*Ornithodoros megnini*. *Bull. Soc. Pat. exot* 18(5):408-409.

Dios, R. I. & R. Knopoff

1934. Sobre Ixodoides de la Republica Argentina. *Rev. Inst. bact., S. Aires*. 6:359-412. (Abstract used).

Dunn, L. H.

1923. The ticks of Panama, their hosts, and the diseases they transmit. *Amer. J. trop. Med.* 3(2):91-104.

- 1923a. The tropical bedbug in relation to the transmission of relapsing fever in Panama. *Amer. J. trop. Med.* 3(4):345-350.

1929. Notes on some insects and other Arthropods affecting man and animals in Colombia. *Amer. J. trop. Med.* 9(6):493-508.

1931. Notes on the tick, *Ornithodoros talaje* (Guér.), infesting a house in the Canal Zone. *Psyche*, Camb., Mass. 38(4):170-174.

1933. Two new species of ticks from Panama (*Amblyomma tapirellum* and *A. pecarium*). *Parasitology*. 25(3):353-358.

- Dunn, L.H.
1934. Entomological investigations in the Chiriqui Region of Panama. *Psyché*, Camb., Mass. 41(3):166-183.
- Eads, R.B.
1931. N. host and distribution records for *Amblyomma inornatum*. *J. econ. Ent.* 44:819-820.
- Escomel, E.
1924. Essai sur la Parasitologie d'Arequipa (Pérou) et de ses environs. *Bull. Soc. Pat. exot.* 17(10):906-925.
- Espinosa-Tamayo, L.
1917. Über die pathologische Geographie von Ecuador. *Arch. Schiffs-u. Tropenhyg.* 21(17):285-291.
- Fairchild, G.B.
1943. An annotated list of the bloodsucking insects, ticks and mites known from Panama. *Amer. J. trop. Med.* 23(6):569-591.
- Fiasson, R.
1943. Notes sur les parasites animaux du haut-Apure (Venezuela). *Rev. Sci. méd. Afr. franc. Lib.* 2(2):125-151. (Abstract used).
- Fisher, H.C.
1922. Entomological report. Rep. Panama Canal Hlth Dep. pp. 59-60. (Abstract used).
- Floch, H. & E. Abonnenc
1940. Ixodides de la Guyane française, I - III. *Publ. Inst. Pasteur Guyane.* no. 3. 46 p.
- _____. & _____
1941. Ixodides de la Guyane française, I - III. *Publ. Inst. Pasteur Guyane.* no. 4. 31 p.
- _____. & _____
1942. Ixodides de la Guyane française, I - III. *Publ. Inst. Pasteur Guyane.* no. 32. 14 p.
- _____. & _____
1944. Culicides et Ixodides guyanais. Moustiques signalés pour la première fois et présence de *Ornithodoros talaje* en Guyane française. *Publ. Inst. Pasteur Guyane.* no. 86. 6p.
- _____. & _____
1945. Ixodides de la Guadeloupe. Présence de *Dermacentor nitens* Neumann, 1897. *Publ. Inst. Pasteur Guyane.* no. 118. 6 p.
- Fox, I.
1947. *Ornithodoros puertoricensis*, a new tick from rats in Puerto Rico. *J. Parasit.* 33(3):253-259.
- Hoogstraal, H.
1956. African Ixodoidea. I. Ticks of the Sudan (with special reference to Equatoria Province and with preliminary reviews of the genera *Boophilus*, *Margaropus*, and *Hyalomma*). *Bur. Med. Surg. Dep. Navy, Washington, D.C.* 1101 p.
- Iriarte, D.R.
1943. Contribucion a la Fauna Venezolana. *Bol. Lab. Clin. Razetti.* 3(11):189-203.
- Kohls, G.M. & H.T. Dalmat
1952. The male of *Dermacentor dissimilis* Cooley (Acarina: Ixodidae). *J. Parasit.* 38(2):140-142. (Abstract used).
- Laemmert, H.W. Jr., I. de C. Ferreira & R.M. Taylor
1946. Part II. Investigations of vertebrate hosts and Arthropod vectors. *Suppl. to Amer. J. trop. Med.* 26(6):23-69.

- Lehille, F.
1915. Notas sobre los Argéidos chilenos. An. Zool. aplic. 2(1):5-11.
- Larrousse, P.
1925. Contribution à l'étude des tiques de l'Annam: description de deux espèces nouvelles du genre *Haemaphysalis*: *H. obesa* n.sp. et *H. layrangei* n.sp. Ann. Parasit. hum. comp. 3(3):301-305.
- Leeson, H.S.
1951. The recorded distribution of the tick *Rhipicephalus sanguineus* (Latreille). Bull. ent. Res. 42(1):123-124.
- León, L.A. & B.C. de León
1947. Estado actual de los conocimientos sobre la fiebre recurrente en el Ecuador. Rev. Kuba Med. trop. Parasit. 3(7):145-150.
- Macchiavello, A.
1942. Investigations of Chilean Exanthematicus typhus and experimental Exanthematicus typhus. Proc. 6th Pacif. Sci. Congr. 5:649-675.
- Magalhaes, O.
1944. Rickettsias in Brazil. (Rickettsial diseases in Brazil). Bol. Ofic. sanit. pan-amer. 23(1):17-19.
- Matheson, R.
1941. A new species of tick, *Ornithodoros andiasi* (Ixodoidea, Argasidae) from bat caves in Venezuela. Bol. Ent. venezol. 1(1):3-5.
- Mazzotti, L.
1943. Una nueva especie de *Ornithodoros* en Mexico. Rev. Inst. Salubr. Enferm. trop., Mex. 4(4):371-374.
- _____. & M.T. Osorio
1943. Experimentos de transmisión de *Trypanosoma cruzi* en cuatro especies de *Ornithodoros*. Rev. Inst. Salubr. Enferm. trop., Mex. 4(2):163-165.
- _____. & _____
1947. Observaciones sobre la biología del *Ornithodoros furosus* Neumann. Rev. Inst. Salubr. Enferm. trop., Mex. 8(1):57-62.
- _____. & G. Varela
1946. Conservación experimental del virus de la fiebre manchada en *Ornithodoros furosus*. Rev. Inst. Salubr. Enferm. trop., Mex. 43(12):1135
- Meña, B.
1943. Present status of human bartonellosis. Bol. Ofic. sanit. pan-amer. 22(4):304-309.
- Minning, W.
1934. Beiträge zur Systematik und Morphologie der Zeckengattung *Boophilus* Curtice. Z. Parasitenk. 7(1):1-43.
- Neumann, L.G.
1913. Un nouveau sous-genre et deux nouvelles espèces d'Ixodides. Bull. Soc. zool. Fr. 38(5):147-151.
- Nuttall, G.H.F.
1916. Notes on ticks. IV. Parasitology. 8(3):294-337.
- Osorno-Mesa, E.
1940. Las garrapatas de la República de Colombia. Rev. Acad. colomb. 4(13):6-24.
- Ortiz Mariotte, C., M.E. Bustamante & G. Varela
1944. Hallazgo del *Rhipicephalus sanguineus* Latreille infectado naturalmente con fiebre manchada de las Montañas Rocosas en Sonora (México). Rev. Inst. Salubr. Enferm. trop., Mex. 5(4):297-300. (Abstract used).

- Patino-Camargo, L.
1940. Arthropods hematofagos de la fauna Colombiana. Rev. Acad. Colomb. 3(11):337-344.
- Patino, L., A. Afanador & J.H. Paul
1937. A spotted fever in Tobia, Colombia. Amer. J. trop. Med. 17(5):639-653.
- Pifano, F.
1941. La enfermedad de Chagas en el estado Yaracuy, Venezuela. Gac. med. Caracas. 48(3-7):201-206, 209-216, 220-227, 232-236, 244-246. (Abstract used).
- Reyne, A.
1923. Verslag van den entomoloog. Versl. 1922 Dep. Landb. Suriname. pp. 32-39.
- Roberts, R.A.
1934. Some insects collected in Mexico, mostly in association with man and animals or animal products. J. N.Y. ent. Soc. 42(3):219-262.
- Robinson, L.E.
1926. The genus *Amblyomma*. Ticks: A monograph of the Ixodoidea, Part IV. Cambridge Univ. Press, 1926. 302 p.
- Root, F.M.
1924. Notes on blood-sucking Arthropods collected at Tela, Honduras, and Port Limon, Costa Rica, during the summer of 1924. Rep. med. Dep. un. Fruit Co. pp. 207-209. (Abstract used).
- Roy, D.N. & A.W.A. Brown
1954. Entomology (medical and veterinary) including insecticides and insect and rat control. Excelsior Press, 2nd ed., Calcutta. 413 p.
- Schulze, P.
1936. Neue und wenig bekannte Amblyommen und Aponommen aus Afrika, Südamerika, Indien, Borneo und Australien. (Ixodidae.) Z. Parasitenk. 8(6):619-637.
- 1937. Die Ixodoidea der Galapagos-Inseln. Medd. zool. Mus. Oslo. no. 45. 155-162.
- 1937a. *Anoentor columbianus* n.g.n.sp. (Ixod.) Zool. Anz. 120(1-2):24-27.
- Sen, P.
1938. A check- and host-list of Ixodoidea (ticks) occurring in India. Indian J. vet. Sci. 8(2):133-147.
- Senevet, G.
1938. Quelques Ixodidés de la Guadeloupe. Arch. Inst. Pasteur Alger. 16(2):226 p.
- 1940. Quelques Ixodidés de la Guyane française. Espèces nouvelles d'*Ixodes* et d'*Amblyomma*. 6th Int. Congr. Ent. 2:891-898.
- Sharif, M.
1938. Diseases transmitted by the Indian species of ticks and the possibility of their prevention through biological control. Indian J. vet. Sci. 8(4):353-366.
- Squibb, R.L.
1946. II. A new method for the control of cattle ticks in tropical regions. J. Anim. Sci. 5(1):71-79.
- Stage, H.H.
1947. DDT to control insects affecting man and animals in a tropical village. J. econ. Ent. 40(6):759-762.
- Strong, R.P., G.C. Shattuck, J.C. Bequaert & R.E. Wheeler
1926. Medical report of the Hamilton Rice seventh expedition to the Amazon in conjunction with the Department of Tropical Medicine of Harvard University, 1924-1925. Contr. Harv. Inst. trop. Biol. Med. no. 4. 313 p.

- Tate, H.D.
1941. The biology of the tropical cattle tick and other species of tick in Puerto Rico, with notes on the effects on ticks of arsenical dips. J. Agric. Univ. P.R. 25(1):28 p.
- Theodor, C.
1932. Über *Ornithodoros coniceps* Canestrini in Palästina. Z. Parasitenk. 5(1):69-79.
- Tonelli Rondelli, M.
1939. Ixodoidea. Parte II. Contributo alla conoscenza della fauna ixodologica sud-americana. Riv. Parassit. 3(1):39-55.
- Toumanoff, C.
1944. Les tiques (Ixodoidea) de l'Indochine. Recherches faunistiques avec indications sur les Ixodides des pays voisins. Notions générales sur la biologie et les moyens de combattre ces Acariens. Inst. Pasteur Indo-Chine. 220 p.
- Tovar, R.M.
1944. Existencia del *Dermacentor parumapertus* Neumann, *Amblyomma inornatum* Banks y *Amblyomma maculatum* Koch en México. Rev. Inst. Salubr. Enferm. trop., Méx. 5(4):293-295. (Abstract used).
- Travassos, J.
1938. Etudes expérimentales sur la transmission du "typhus exanthématique de Sao Paulo" par l'*Amblyomma striatum* Koch, 1844. C.R. Soc. Biol., Paris. 127(5):462-464.
1938a. Transmission expérimentale du "typhus exanthématique de Sao Paulo" par l'*Amblyomma brasiliense* Aragao, 1908. C.R. Soc. Biol., Paris. 127(13):1375-1376.
- Van Volkenberg, H.L.
1934. Parasites and parasitic diseases of cattle in Puerto Rico. Bull. P. R. [fed.] agric. Exp. Sta. no. 36. 26 p.
- Vellard, J.
1937. Arthropodes vésicants ou piqueurs connus sous le nom de pitos dans les Andes vénézuéliennes. Bull. Soc. Pat. exot. 30(10):878-884.
- Vigueras, J.P.
1934. On the ticks of Cuba, with description of a new species, *Amblyomma torrei*, from *Cyclura Macleayi* Gray. Psyche, Camb. Mass. 41(1):13-18.
- Viton, A.
1922. Las Garrapatas. Gac. rur., B. Aires. 15(177):1041-1051. (Abstract used).
- Vogelsang, E.G. & E.H. Cordero
1940. Las garrapatas (Ixodidae) de Venezuela. Rev. Med. vet., Caracas. 2(1-2):71-76.
- Warburton, C.
1933. On five new species of ticks (Arachnida Ixodoidea). *Ixodes petauristae*, *I. ampullaceus*, *Dermacentor imitans*, *Amblyomma laticaudae* and *Aponomma draconis*, with notes on three previously described species, *Ornithodoros franchinii* Tonelli-Rondelli, *Haemaphysalis ooleysi* Bedford and *Rhipicephalus maculatus* Neumann. Parasitology. 24(4):558-568.
- Whittick, R.J.
1939. On some ticks belonging to the genera *Aponomma* and *Amblyomma*. Parasitology. 31(4):434-441.
- Wilson, C.E.
1921. Insect notes. Rep. Virg. Is. (U.S.) agric. Exp. Sta. pp. 32-33.
- Woke, P.A.
1947. Arthropods of sanitary importance in the Republic of Nicaragua, Central America. Amer. J. trop. Med. 27(3):357-375.

L. MITES

The entries for mites include a wide variety of species, most of which seldom bite man. For the most part, there are no biological entries. The trombiculid entries are, of course, for larval stages. Most of the others will be for various stages, but mostly for adults.

There are 73 species or subspecies recorded in the table.

TABLE 1 - MITES

SPECIES	SPECIFIC NOTES; DISTRIBUTION. (GENERAL STATEMENTS)	AUTHOR	DATE
<i>ARTHRODIA</i> <i>trifurcata</i> Torres & Braga	---; 53*	Wharton & Fuller	1952
<i>PARASITICUS</i> <i>gilliesi</i> De Geer	---; 328°	Vogelaang	1944
<i>DOCHOMANTIA</i> <i>paucispinis</i> (Floch & Abonnenc)	---; 130°	Jenkins	1949 a
<i>OTIUM</i> (Hoffmann)	---; 204*	Wharton & Fuller	1952
<i>TRIMICHAELA</i> <i>lymnaeae</i> Oudemans	---; 27, 69, 204, 346	Jenkins	1948
<i>OTIUM</i> (Linnaeus)	---; 22, 82, 204, 238, 328	Jenkins	1948
	Common in grassy areas around houses and in villages where domestic animals are numerous, larvae attached to man, greatest larvae activity after grass becomes partially dry in morning, May; 237°	Michener	1946 a
<i>OTIUM</i> Ewing	---; 237	Fairchild	1943
<i>OTIUM</i> Oudemans	---; 237	Fairchild	1943
<i>OTIUM</i> (Oudemans)	In jungle or brush covered areas; 237°. ---; 297°	Michener	1946
<i>OTIUM</i> Ewing	---; 237°	Fairchild	1943
<i>OTIUM</i> Ewing	---; 237	Fairchild	1943
<i>OTIUM</i> (Hirst)	---; 27	Da Fonseca	1942
	---; 53°	Da Fonseca	1939
<i>OTIUM</i> Da Fonseca	---; 53°	Da Fonseca	1939
<i>OTIUM</i> (Berlese)	Common; 53°	Da Fonseca	1935
	---; 53*	Machado	1943

TABLE 1 - MITES (continued)

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>SARCOPTES</i> <i>scabiei</i> (De Geer)	---; 53°	Strong et al.	1925
<i>scabiei</i> var. <i>hominis</i> (Linn.)	---; 129°	Cleare	1919
<i>TROMBICULA</i> <i>alfreddugesi</i> (Oudemans)	---; 17, 18, 20, 22, 27, 53, 82, 204, 237, 240, 297, 325, 328, 329 (Host man, vector of dermatitis)	Wharton & Fuller	1952
	---; 53°	Jenkins	1949 _a
<i>alfreddugesi</i> <i>tropica</i> Ewing	---; 328°	Jenkins	1949 _a
<i>alles</i> Ewing	---; 237	Wharton & Fuller	1952
	Under aquatic vegetation left stranded on river banks by receding water and on floating plants of <i>Pistia stratiotes</i> , Sept.-March; 238	Michener	1946 _b
<i>attenuata</i> Michener	---; 237	Wharton & Fuller	1952
	On floating plants of water lettuce, <i>Pistia stratiotes</i> , Aug.-Oct.; 238	Michener	1946 _b
<i>australis</i> Ewing	April; 240	Ewing	1929
<i>avie</i> Floch & Abonnenc	---; 130	Wharton & Fuller	1952
<i>bakeri</i> Ewing	In mass, Dec.; 204	Ewing	1946
<i>batatas</i> (L.)	---; 21, 22, 53, 82, 130, 204, 237, 297, 328 (Host: man, vector of dermatitis)	Wharton & Fuller	1952
	---; 53°, 130°, 204°, 237°, 297°, 328°	Jenkins	1949 _a
<i>beltrami</i> Hoffmann	---; 204	Wharton & Fuller	1952
<i>biops</i> Wharton	---; 240	Wharton & Fuller	1952
<i>brasiliensis</i> Ewing	---; 53°	Strong et al.	1926
<i>bruyantii</i> (Oudemans)	---; 53	Ewing	1931
<i>butantanensis</i> Da Fonseca	---; 53°	Da Fonseca	1933

TABLE 1 - MITES (continued)

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TROMBICULA</i>			
<i>camilla</i> Wharton	---; 204	Wharton & Fuller	1952
<i>canis</i> Floch & Abonnenc	---; 130°	Jenkins	1949 _a
<i>oculomaculatus</i> Ewing	Bat caves; 237	Fairchild	1943
<i>chana</i> Wharton	---; 240	Wharton & Fuller	1952
<i>coarctata</i> (Berlese)	---; 27, 75, 239	Wharton & Fuller	1952
<i>dasyproctus</i> Ewing	Aug.; 237	Ewing	1937
<i>desdentata</i> Boshell & Kerr	---; 82	Wharton & Fuller	1952
<i>chervi</i> Ewing	---; 237	Ewing	1931
<i>wingi</i> Fonseca	---; 53	Wharton & Fuller	1952
<i>flui</i> van Thiel	---; 297	Ewing	1931
<i>goldii</i> (Oudemans)	---; 53, 130, 237, 297, 328 (Host: man, vector of dermatitis)	Wharton & Fuller	1952
	Mus, tree holes and under barks of fallen logs, fairly common all year; 82	Womersley	1952
	---; 82°, 130°, 297°. ---; 237°, 328° (Commonly in the tropical forest, especially on second growth jungle areas)	Jenkins	1949 _b
	---; 238, 328°	Jenkins	1949 +
<i>guineensis</i> (Bryant & Jajoux)	---; 130	Ewing	1931
<i>hellari</i> (Oudemans)	---; 237	Womersley	1952
	---; 297	Ewing	1931
<i>neolaris</i> Ewing	---; 91	Ewing	1925

TABLE 1 - MITES (continued)

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TROMBICULA</i> <i>irritans</i> (Lucas)	---; 53*	Wharton & Fuller	1952
<i>irritans</i> var. <i>tropica</i> Ewing	---; 328	Ewing	1925
<i>japa</i> (Ribeyro & Bambaran)	Wooded areas; 240** ---; 240*	Jenkins Wharton & Fuller	1949 1952
<i>laeertillas</i> Boshell	---; 82	Boshell & Kerr	1942
<i>lahillei</i> Sig Thor & Willman	---; 27*	Wharton & Fuller	1952
<i>landasuri</i> Boshell & Kerr	---; 51°, 82°	Wharton & Fuller	1952
<i>mauriquai</i> (Ewing)	---; 82	Womersley	1952
<i>mauriquai</i> Ewing	Tree hole, Oct.; 82	Ewing	1937
<i>mericana</i> Ewing	---; 204	Ewing	1937
<i>myops</i> Vitzthum	---; 204, 328	Wharton & Fuller	1952
<i>nativitatus</i> Hoffmann	---; 204	Wharton & Fuller	1952
<i>ophidia</i> De Fonseca	---; 53	Wharton & Fuller	1952
<i>panamensis</i> Ewing	---; 237	Wharton & Fuller	1952
	---; 238	Ewing	1925
<i>pastorae</i> Boshell	---; 82	Boshell & Kerr	1942
<i>pearsoni</i> Wharton	---; 240	Wharton & Fuller	1952
<i>peruviana</i> Ewing	June; 240	Ewing	1925
<i>pitoeina</i> Hoffmann	---; 204	Wharton & Fuller	1952

TABLE 1 - MITES (conclusion)

SPECIES	SPECIFIC NOTES; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TROMBICULA</i>			
<i>pittaci</i> Floch & Abonnenc	---; 130	Wharton & Fuller	1952
<i>punctata</i> Boshell & Kerr	---; 82	Wharton & Fuller	1952
<i>shannoni</i> Ewing	May; 240	Ewing	1929
<i>thomasi</i> (Oudemans)	---; 240	Ewing	1931
<i>tinami</i> (Oudemans)	---; 53	Ewing	1931
<i>tlazakuete</i> Brumpt	---; 204	Jones	1950
<i>travassosi</i> Fonseca	---; 53	Wharton & Fuller	1952
<i>trifurca</i> Ewing	Bat caves; 237	Fairchild	1943
<i>tropica</i> Ewing	Common in coastal areas; 22	Van Volkenberg	1935
	---; 326	Ewing	1931
<i>vanommereni</i> Schierbeck	---; 204, 237	Womersley	1952
<i>velascoi</i> Boshell & Kerr	---; 82, 237	Wharton & Fuller	1952
	All year, under stones and logs and in leaf mold frequently in dry situations; 238	Michener	1946 b
<i>yorki</i> Soulon	---; 53	Ewing	1931
<i>TRYOGLYPHUS</i>			
<i>farinae</i> (De Geer)	---; 53*	Machado	1943

TABLE 2 - SUMMARY OF DISEASES OR DISEASE ORGANISMS TRANSMITTED BY MITES

SPECIES	DISEASE OR DISEASE ORGANISMS				DISTRIBUTION
	VIRUS & RICKETTSIA	PROTOZOA	HELMINTHS	OTHER	
	:	:	:	:	
<i>APOLONIA</i> <i>tigipioensis</i> Torres & Braga				Dermatitis	53
<i>EUSCHONGASTIA</i> <i>nuñezi</i> (Hoffmann)				Dermatitis	204
<i>LIPONYSSUS</i> <i>bursa</i> (Berlese)				Dermatitis	53
<i>TROMBICULA</i> <i>goldii</i> (Oudemans)				Trombidiosis	237, 238
<i>irritans</i> (Lucas)				Dermatitis	53
<i>japa</i> (Ribeyro & Bambaran)				Trombidiosis	240
				Dermatitis	240
<i>Lahillei</i> Thor & Willmann				Dermatitis	27
<i>TYROGLYPHUS</i> <i>farinae</i> (De Geer)				Cutaneous & intestinal irritation	53

LITERATURE CITED

Boshall, M. J. & J. A. Kerr

1942. Veinticinco especies nuevas de Trombidídeos de Colombia. Rev. Acad. colomb. 5(17):110-127.

Cleare, L. D.

1919. Some parasites of man and animals in British Guiana. Brit. Guiana med. Annu. pp. 58-77.

da Fonseca, F.

1933. V. *Trombicula butantanensis* sp. n. (Acarina, Trombididae). Mem. Inst. Butantan. 7:147-150.

1935. XIII. Novas especies sul-americanas de parasitos do genero *Liponissus* Kolenati, 1858 (Acarina, Liponissidae). Mem. Inst. Butantan. 9:69-98.

1939. Notas de Acareologia. XXVII. *Liponissus brasiliensis*, sp. n., parasita habitual de roedores e accidental do homem. Mem. Inst. Butantan. 12:147-154.

1942. Notas de acareologia. XXXII. Novas espécies brasileiras do género *Liponissus* Kolenati (Acari, Liponissidae). Mem. Inst. Butantan. 15:103-118.

Ewing, H. E.

1925. A contribution to our knowledge of the taxonomy of chiggers including the descriptions of a new genus. Amer. J. trop. Med. 5(3):259-260.

1926. Key to the known adult *Trombiculas* (Adults of chiggers) of the New World with descriptions of two new species, (Acarina, Trombidioidea). Ent. News. 37(4):111-113.

1929. Three new american chiggers (Acarina: Trombididae). Proc. ent. Soc. Wash. 31(1):9-11.

1931. A catalogue of the Trombiculinae, or chigger mites. of the New World, with new genera and species and a key to the genera. Proc. U. S. nat. Mus. 80(2908):19.

1937. New species of mites of the subfamily Trombiculinae, with a key to the New World larvae of the akamushi group of the genus *Trombicula*. Proc. biol. Soc. Wash. 50:167-174.

1946. Taxonomic notes on American chiggers (larvae of the mite family Trombiculidae), including the redescription of a genus and the descriptions of two new species. Proc. biol. Soc. Wash. 59:21-28.

Fairchild, C. B.

1943. An annotated list of the bloodsucking insects, ticks and mites known from Panama. Amer. J. trop. Med. 23(6):569-591.

Jenkins, D. W.

1948. Trombiculid mites affecting man. I. Bionomics with reference to epidemiology in the United States. Amer. J. Hyg. 48(1):22-35.

- Jenkins, D. W.
1949. Trombiculid mites affecting man. I. Bionomics with reference to epidemiology in the United States. *Amer. J. Hyg.* 48(1):22-35.
- 1949a. Trombiculid mites affecting man. IV. Revision of *Eutrombicula* in the American hemisphere. *Ann. ent. Soc. Amer.* 42:289-318.
- Jones, B. M.
1950. A method for studying the distribution and bionomics of trombiculid mites (Acarina) (Trombididae). *Parasitology.* 40:1-13.
- Machado, O.
1943. Catálogo sistemático dos animais urticantes e peçonhentos do Brasil. *Bol. Inst. Vital Brasil.* no. 25. 41-64.
- Michener, C. D.
1946. Taxonomic and bionomic notes on some Panamanian chiggers (Acarina, Trombiculinae). *Ann. ent. Soc. Amer.* 39(3):411-417.
- 1946a. Observations on the habits and life history of a chigger mite, *Eutrombicula batatas* (Acarina: Trombiculinae). *Ann. ent. Soc. Amer.* 39(1):101-118.
- 1946b. The taxonomy and bionomics of a new subgenus of chigger mites (Acarina Trombiculinae). *Ann. ent. Soc. Amer.* 39(3):431-445.
- Strong, R. P., G. C. Shattuck, J. C. Bequaert, & R. E. Wheeler
1926. Medical report of the Hamilton Rice Seventh Expedition to the Amazon, in conjunction with the Department of Tropical Medicine of Harvard University, 1924-1925. *Contr. Harv. Inst. trop. Biol. Med.* no. 4. 313 p.
- Van Volkenberg, H. L.
1935. Parasites and parasitic diseases of horses in Puerto Rico. *Bull. P. R. fed. agric. Exp. Sta.* no. 37. 19.
- Vogelsang, E. V.
1944. Contribución al estudio de la parasitología animal en Venezuela. XV. Acarina de los animales domésticos y salvajes. *Bol. Ent. venezol.* 3(1):51-56.
- Wharton, G. W. & H. S. Fuller
1952. A manual of the chiggers. The biology, classification, distribution, and importance to man of the larvae of the family trombiculidae (Acarina). *Mem. ent. Soc. Wash.* no. 4. 185.
- Womersley, H.
1952. The scrub-typhus and scrub-itch mites (Trombiculidae, Acarina) of the Asiatic-Pacific Region. *Rec. S. Aust. Mus.* 10(1-2):673.

M. MISCELLANEOUS ARTHROPODS

The entries listed as miscellaneous arthropods are largely scorpions and spiders.
There are only 35 species or subspecies listed.

TABLE 1 - MISCELLANEOUS ARTHROPODS

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>CENTRUROIDES</i>			
<i>elegans</i> Thorell	---; sting fatal to children; 204°	Baerg	1934
<i>infamatus</i> <i>infamatus</i> (Koch)	---; sting fatal to children; 204°	Baerg	1934
<i>limpidus</i> Karsch	---; sting fatal to children; 204°	Baerg	1934
<i>limpidus</i> <i>tecomanus</i> Hoffmann	---; sting fatal to children; 204°	Baerg	1934
<i>margaritatus</i> Gervais	---; venomous; 238°	Baerg	1925
<i>noxius</i> Hoffmann	---; sting fatal to children; 204°	Baerg	1934
<i>GLIPTOCRANIUM</i>			
<i>gasteracanthoides</i> Nicolet	---; sting poisonous, sometimes causes death; 240°	Escomel	1917
<i>HETEROPODA</i>			
<i>venatoria</i> (Linn.)	---; venomous; 53	Ihering	1916
<i>HOMOEOMMA</i>			
<i>nigrum</i> Pockock	---; venomous; 53	Ihering	1916
<i>KARNIOTHRIPS</i>			
<i>flavipes</i> (Jones)	---; ---; 329°	Hood	1927
<i>LATRODECTUS</i>			
<i>curacaviensis</i> Müller	On tobacco plantation; causes Arachnoidism; 27*°	Mazza & Arias Aranda	1931
<i>mactans</i> Fabricius	---; venomous; 27°	Sampayo	1943
	---; venomous; 53	Ihering	1916
	---; severe general poisoning of nervous system; 75°	Donoso Barros	1948 +
	---; prefers dry places, most abundant in country, poisonous; 240°	Escomel	1919
<i>LOXOSCELES</i>			
<i>laeta</i> Nicolet	---; in houses, bite causes cutaneous gangrene and general systemic disturbances; 75°	Donoso Barros	1948 +
<i>LYCOSA</i>			
<i>munna</i> Nicolet	---; necrotic cutaneous lesions; 75°	Donoso Barros	1948 +
<i>raptoria</i>	---; venomous; 53	Ihering	1916

TABLE 1 - MISCELLANEOUS ARTHROPODS (continued)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>MENEMERUS</i> <i>bivittatus</i> (Dufour)	---; venomous; 53	Ihering	1916
<i>OPISTHACANTHUS</i> <i>lepturus</i> Palde	---; ---; 238°	Baerg	1925
<i>PARAPONERA</i> <i>olavata</i> (F.)	---; stings, causing severe irritation; 53°, 129°	Strong et al.	1926
	---; ---; 237°, 238°	Weber	1939
<i>PEDICULUS</i> <i>corporis</i> De Geer	---; common on man at high altitude; 82°	Dunn	1929
	---; ---; 240*	Escomel	1924
<i>humanus</i> <i>capitis</i> De Geer	---; on man, infected with spotted fever; 82°	Patino et al.	1937
<i>PHTHIRIUS</i> <i>pubis</i> Linnaeus	---; common in the pubic region of humans, some times going to the underarms, head, and even the eyebrows; 328°	Martorell	1939
<i>POLYPLAX</i> <i>spinulosa</i> Burn.	---; experimental transmission of typhus; 75	Macchiavello	1942
<i>RHOPALURUS</i> <i>agamemnon</i> (Koch)	---; may cause death; 53°	Neiva & Penna	1916
<i>borellii</i> Pocock	---; occasionally fatal, 53°	Machado	1943
<i>SCOLOPENDRA</i> <i>gigantea</i> Linnaeus	---; ---; 53°, 75°, 204, 328° (Bite may be fatal)	Machado	1943
<i>moreitans</i> Linnaeus	---; bite causes general systemic disturbances, including vomiting; 53°	Machado	1943
<i>sumichrasti</i> Saussure	---; poisonous; 238°	Baerg	1925
<i>SCYTODES</i> <i>globula</i> Nicolet	---; in houses, bite causes rash and fever; 75°	Donoso Barros	1948 +
<i>SERICOPELMA</i> <i>communis</i> Cambridge	---; poisonous; 238°	Baerg	1925
<i>SOLENOPSIS</i> <i>geminata</i> (Fabricius)	---; in houses, bites severely; 53°	Strong et al.	1926

TABLE 1 - MISCELLANEOUS ARTHROPODS (conclusion)

SPECIES	BREEDING HABITATS; ADULT ACTIVITY; DISTRIBUTION (GENERAL STATEMENTS)	AUTHOR	DATE
<i>TITYUS</i> <i>bahiensis</i> (Perty)	---; may cause death of children; 53°	Neiva & Penna	1916
<i>cambridgei</i> Pocock	---; ---; 130°*	Floch et al.	1950 +
<i>serrulatus</i> Lutz & Mello	---; enter houses, occasionally causes death; 53°	Machado	1943
<i>trinitatis</i> Pocock	---; damp places in cane fields and banana plantations clinging to old wood, damp leaves, sugar canes, venomous; 329°	Waterman	1939
<i>TRICHODECTES</i> <i>ovis</i> De Geer	---; intermediate host of dog tapeworm (<i>Dipylidium</i> <i>caninum</i>) which is occasionally reported especially on children; 223	Woke	1947

TABLE 2 - SUMMARY OF DISEASES OR DISEASE ORGANISMS TRANSMITTED BY
MISCELLANEOUS ARTEROPODS

SPECIES	DISEASE ORGANISM				DISTRIBUTION
	VIRUS & RICKETTSIA	PROTOZOA	NELMINTHS	OTHER	
<i>LATRODECTUS</i> <i>curacaoensis</i> Miller				Arachnoidism	27
<i>PEDICULUS</i> <i>corporis</i> De Geer	Exanthematic typhus				240
<i>TITYUS</i> <i>cambridgei</i> Porcock				Severe poisoning and convulsions	130 +

LITERATURE CITED

Baerg, W. J.

1925. The effect of the venom of some supposedly poisonous arthropods of the Canal Zone. Ann. ent. Soc. Amer. 18(4):471-478.

—

1934. Some poisonous arthropods of southwestern Mexico (Chilopoda and Arachnida). Ann. ent. Soc. Amer. 27(4):527-532.

Donoso Barros, R.

1948. Un caso de aviasia digestiva en Chile. Consideraciones sobre una nueva etiología, *Lucilia caesar* (Linnaeus) 1758. (Nov. Sp. in Fauna Chilensis.). Rev. med. Chile. 77(3):209-211.

Dunn, L. H.

1929. Notes on some insects and other arthropods affecting men and animals in Colombia. Amer. J. trop. Med. 9(6):493-508.

Escomel, E.

1917. *Latrodectus mactans* and *Glyptocentron gas eracanthoides* in the Department of Arequipa, Peru. Med. surg. J. 70(6):530-542. (Abstract used).

—

1919. Le *Latrodectus mactans* ou "Lucacha" au Pérou. Etude clinique et expérimentale de l'Action du Venin. Bull. Soc. Pat. exot. 12(9):702-720.

—

1924. Essai sur la Parasitologie d'Aréquipa (Pérou) et de ses environs. Bull. Soc. Path. exot. 17(10):906-925.

Floch, H., R. Barrat & E. Abonnenc

1950. L'envenimation par piqûre de scorpions en Guyane française. Institut Pasteur De La Guyane et Du Territoire de L'Inini. no. 219. 4 p.

Hood, J. D.

1927. A blood-sucking thrips. Entomologist. 60(772):201

Ihering, R. von

1916. Aranhas e outros Arachnoides do Brazil que determinam Envenenamento. Ann. paulist. Med. Cir. 7(1):5-9.

Macchisavello, A.

1942. Investigations of Chilean Exanthematic Typhus and experimental Exanthematic Typhus. Proc. 6th Pacif. Sci. Congr. 1939. 5:649-675.

Machado, O.

1943. Catálogo sistemático dos animais urticantes e peçonhentos do Brasil. Bol. Inst. Vital Brazil. no. 25. 41-63.

Martorell, L. F.

1939. Insects observed in the State of Aragua, Venezuela, South America. J. Agric. Univ. P. R. 23(4):177-232.

Massa, S. & C. Arias Aranda

1931. Nuevo caso de aracnoidismo por *Latrodectus*. Reun. Soc. argent. Pat. reg. N. 1930. pp. 525-527.

Neiva, A. & B. Penna

1916. Viagem científica pelo Norte da Bahia, Sudoeste do Pernambuco, Sul, do Piauí e de Norte a Sul de Goiás. Mem. Inst. Osw. Cruz. 8(3):74-224.

- Patino, L., A. Afanador & J. H. Paul
1937. A spotted fever in Tobia, Colombia. *Amer. J. trop. Med.* 17(5):639-653.
- Sampayo, R. R. L.
1943. Toxic Action of *Latrodectus mactans*' bite and its treatment, clinical and experimental studies. *Amer. J. trop. Med.* 23(5):537-543.
- Strong, R. P., G. C. Shattuck, J. C. Bequaert & R. E. Wheeler
1926. Medical report of the Hamilton Rice Seventh Expedition to the Amazon, in conjunction with the Department of Tropical Medicine of Harvard University, 1924-1925. *Contr. Harv. Inst. trop. Biol. Med.* no. 4. 213 p.
- Waterman, J. A.
1939. Some observations on the habits and life of the common scorpion of Trinidad. *Trans. R. Soc. trop. Med. Hyg.* 33(1):113-118.
- Weber, M. A.
1939. The sting of the ant, *Paraponera clavata*. *Science*. 89(2392):127-128.
- Woke, P. A.
1947. Arthropods of sanitary importance in the Republic of Nicaragua, Central America. *Amer. J. trop. Med.* 27(3):357-375.

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13. ABSTRACT		
<p>The occurrence of insects and other arthropods of medical importance in Latin America (used here to denote all of South and Middle America, including the West Indies), adjacent islands (Bermuda and the Falklands), and lands within the Antarctic Circle, is summarized on the basis of a compilation of almost all available references in the scientific literature. The report includes, for each major group of arthropods, a listing of species and subspecies with biological and distributional data, tabulations of diseases or disease organisms transmitted, and complete literature citations.</p> <p>The groups of arthropods included, with the number of species or subspecies in parentheses, are:</p> <p>Part I: Mosquitoes (1,251)</p> <p>Part II: Arthropods other than mosquitoes: Black flies (275), Sand flies (204), Midges (178), Horse flies (1,115), Biting flies (3), Non-biting flies (24), Fleas (356), Bugs (70), Urticating and vesicating arthropods (25), Ticks (182), Wites (73), and Miscellaneous arthropods (35).</p>		

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Mosquitoes	9		6			
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